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## **IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Group Art Unit: 1617  
Confirmation No: 3157  
Application No.: 10/781,254  
Filing Date: February 18, 2004  
Inventor: Joel E. Bernstein  
Title: COMPOSITIONS AND METHOD FOR TREATING AFFECTIVE,  
PAINFUL OR ALLERGIC DISORDERS  
Attorney Docket No.: 41959-102742  
Examiner Name: Kim, Jennifer M.

### **DECLARATION UNDER 37 C.F.R. § 1.132**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

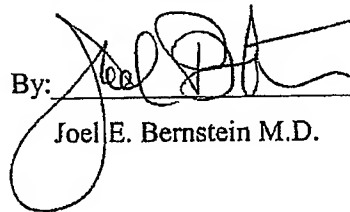
1. I, Joel E. Bernstein, am the sole inventor of U.S. Application No. 10/781,254 (the "Application").
2. I am the Chief Executive Officer of Winston Laboratories, Inc.
3. I reside at 615 Brierhill Road, Deerfield, IL 60015.

4. As agreed upon during an interview conducted with examiner Jennifer Kim on January 9, 2008, I am submitting this Declaration in support of pending independent claims 1 and 11 of the Application which states that compositions containing "a preponderance of cis doxepin isomer over trans doxepin isomer" are "comparable in efficacy to compositions containing a preponderance of the trans doxepin isomer but with significantly less sedative effects."
5. In support of pending independent claims 1 and 11, I am herein submitting the following comparative investigative data:
  - (a) In a study utilizing twenty-eight (28) young adult rats, rats receiving single oral dosages of cis doxepin (90% cis doxepin/10% trans doxepin) up to 300 mg/kg, and observed for an additional 14 days, demonstrated virtually no sedation versus rats receiving between 100-150 mg/kg of doxepin USP (85% trans doxepin/15% cis doxepin) who all demonstrated severe sedation.
  - (b) Five (5) adult patients suffering from either painful fibromyalgia, (3 patients) or chronic urticaria, (2 patients) received a 10 mg capsule containing doxepin USP (85% trans doxepin/15% cis doxepin) twice daily for two weeks, and then, after a one week wash-out period, received a capsule twice daily for two weeks containing 10 mg of a composition in which cis doxepin constituted 90% of the active agent and the trans isomer 10%. The patients observed that they obtained equal relief from the two formulations for the pain of fibromyalgia or the pruritus of chronic urticaria. However, all five reported moderate (2 patients) to severe (3 patients) sedation with the doxepin USP capsules versus only one of the five patients experiencing moderate sedation with the capsules containing predominantly the cis doxepin isomer and the other 4 patients experiencing no sedation.

6. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: Feb. 13, 2008

Respectfully Submitted,

By:   
Joel E. Bernstein M.D.





## Intellectual Property Library

Source: USPQ, 1st Series (1929 - 1986) > U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences > Ex parte Obiaya, 227 USPQ 58 (Bd. Pat. App. & Int. 1985)

### **227 USPQ 58**

#### **Ex parte Obiaya**

#### **U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences**

Opinion dated July 23, 1985

### **Headnotes**

#### **PATENTS**

##### **[1] Patentability -- Invention -- In general (► 51.501)**

Inventor's recognition of another advantage that would flow naturally from following suggestion of prior art cannot be basis of patentability when differences would otherwise be obvious.

##### **[2] Double patenting -- In general (► 33.1)**

##### **Reissue -- In general (► 58.1)**

Double patenting rejections are analogous to Section 103 rejections and depend on presence of prior "patent" as basis for rejection, and thus such rejection falls within ambit of those intended by reexamination statute.

##### **Particular Patents -- Combustible Element**

4,128,458, Obiaya, Combustible Element and Oxygen Concentration Sensor, Claims 1-13, rejected.

##### **Case History and Disposition**

Appeal from Art Unit 112.

Reexamination No. 90/000,449, for No. 4,128,458, issued Dec. 5, 1978, based on application, Serial No. 845,049, filed Oct. 25, 1977. Rejection of Claims 1-13, sustained.

##### **Attorneys**

Stephen J. Schultz, for appellant.

##### **Judge**

Before Merker, Katz, and Pellman, Examiners-in-Chief.

### **Opinion Text**

#### **Opinion By:**

Katz, Examiner-in-Chief.

This is a reexamination of Patent No. 4,128,458 and was requested by the defendant in an infringement suit brought by patentee.

This is an appeal from the final rejection of claims 1 through 14, which are all the claims in the case.

Claims 1 and 6 are illustrative of the appealed claims and read as follows:

1. A combustible fluid and oxygen concentration sensor comprising:

a. a combustible concentration analyzer;

b. an oxygen concentration analyzer;

c. conduit means for routing a fluid sample past said combustible concentration analyzer and oxygen concentration analyzer;

d. an inlet port to said conduit means for receiving a sample fluid;

- e. an outlet port from said conduit means for ejecting said sample after analysis;
- f. means for producing fluid flow in said conduit means from said inlet port to said outlet port;
- g. means to correct the combustible concentration analyzer to an indicator; and
- h. means to connect the oxygen analyzer to a second indicator;
- i. said conduit means comprising:
  - i. first and second portions arranged to divide the flow into separate paths downstream from said inlet and upstream from said flow producing means;
  - ii. said first portion supplying the oxygen analyzer but not the combustible analyzer [sic, analyzer] with sample fluid;
  - iii. said second portion supplying the combustible analyzer but not the oxygen analyzer with sample fluid;
  - iv. a heater associated with said second portion upstream of said combustible analyzer; and
  - v. an inlet for providing air to said second portion upstream of said heater, to insure complete combustible analysis within said combustible analyzer.

6. The combustible fluid and oxygen concentration analyzer of Claim 4 where said oxygen concentration analyzer comprises:

- a. a reactor member;
- b. a heater element, configured in the form of a mesh structure, embedded within said reactor member; and
- c. a base for mounting said reactor member;
- d. said reactor member comprising:
  - i. an electrolyte with oxygen ion vacancies providing paths for oxygen ion conduction;
  - ii. a first and second conductive electrode for inducing a voltaic reaction within said source, and
  - iii. means for connecting said first and second conductive electrodes to external means for measuring the voltage difference created in said electrodes by said voltaic reaction.

The claimed invention relates to a sensor containing a combustion fluid and oxygen concentration analyzer in which a fluid sample is drawn into the sensor apparatus and separated into two parts, one part going to the oxygen analyzer and the other part going to the combustion analyzer. A heater is employed to maintain the sample going to the combustion analyzer at a constant temperature to obtain uniform results. An inlet is also provided such that air can be used to combust the materials going to the combustion analyzer. The components of the oxygen analyzer are set out in greater detail in claims 6 and 13.

The references relied on are:

*Table set at this point is not available. See table in hard copy or call BNA at 1-800-372-1033.*

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"Product Specification E65-1, Oxygen and Combustibles Analyzer," 1956

"Bailey Product Instructions E65-6, Gas Analyzers Type OA, OB and OC", 1965

"Product Instructions E65-15, Heat Prover Combustion Analyzer", 1956

Bulletin P-23 of Thermox Instruments, Inc., 1976

Claims 1, 2, and 7 stand rejected under 35 U.S.C. 103 in view of the combination of OC Analyzer, Heat Prover or E65-1 in view of Ross et al. Claims 3, 4, 8 through 11 and 14 stand rejected for the same reasons and further in view of Yant et al., Lamb et al. or Cherry. Claim 7 stands rejected for the same reasons and further in view of Thermox. Claims 8 and 11 stand rejected under 35 U.S.C. § 103 in view of the combination of OC Analyzer, Heat Power or E65-1 taken with Ross et al., Thermox and Yant et al., Lamb et al. or Cherry. Claims 5 and 12 stand rejected under 35 U.S.C. § 103 over OC Analyzer, Heat Prover or E65-1 taken with Ross et al. and either Yant et al., Lamb et al. or Cherry and further in view of Fisher. Claims 6 and 13 stand rejected under the judicially-created doctrine of obvious type double patenting in view of the combination of the patented subject matter of claims 1 through 3, 6 and 7 of Obiaya taken with OC Analyzer, Heat Prover or E65-1 with Ross et al. and also either Yant et al., Lamb et al. or Cherry.

We have carefully considered the arguments in this case and find that we agree with the examiner for the reasons set forth in the Answer. We adopt these reasons as our own and add the following only for purpose of

emphasis.

In view of the fact that the examiner has answered each of the points made by appellant, it would be redundant to repeat these points. We will restrict our comments to the highlights of the appeal.

The main features of the claimed invention relate to the parallel flow of a divided sample to two different analyzers, a vacuum to draw the sample to the analyzers and then to exhaust, and a heater means upstream of a combustion analyzer. A number of the claims call for specific features, such as a labyrinth heater, a pressure regulator and the use of a specific combustion sensor.

We believe that the references clearly disclose each of the features in similar apparatus such that one skilled in this art having these references available would have found the claimed invention to be obvious. The examiner has established a *prima facie* case of obviousness. See *In re Lintner*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972) and *In re Greenfield*, 571 F.2d 1185, 197 USPQ 227 (CCPA 1978). A number of the references, exemplified by E65-1, disclose that it is well-known to divide a sample into separate parts and pass one part to an oxygen sensor and the other part to a combustion sensor, the parts then being recombined and exhausted. Ross et al. disclose that the art recognizes that samples may be aspirated or sucked into the system so as to pass through the sensor. A number of the references disclose labyrinth heaters, pressure regulators and, as set forth in the claims of the Obiaya patent, combustion analyzers of the type described in claims 6 and 13, now before us.

Appellant has pointed out the deficiencies in each of the references. However, the rejection is based on the combination of references. The test of obviousness under 35 U.S.C. §103 is not the express suggestion of the claimed invention in any or all of the references, but what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them. Note *In Re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965) and *In Re Simon*, 461 F.2d 1387, 174 USPQ 114 (CCPA 1972). We believe that one skilled in this art would have understood that the various features of the references could be combined to obtain the expected additive results.

[ 1 ] Appellant has presented evidence to indicate that a shorter response time is obtained when a labyrinth heater is employed, this being an unexpected result. However, the references disclosing labyrinth heaters indicate that the advantage obtained by using such heaters is that samples are maintained at a uniform temperature. The fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. Note *In Re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In Re Wilder*, 429 F.2d 447, 166 USPQ 545 (CCPA 1970).

The examiner has rejected claims 6 and 13 on the judicially-created doctrine of double patenting of the obviousness type. The determination of whether the rejection is proper under the reexamination statute is a question of first impression. The Statute governing reexamination of patents is contained in 35 U.S.C. §301-307.

35 U.S.C. §301 contains the key language that:

"Any person at any time may cite to the Office in writing *prior art* consisting of *patents* or *printed publications*." (emphasis added).

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Section 302 states that a request for reexamination by the Office of any claim of a patent may be:

"on the basis of any *prior art* cited under the provisions of Section 301." (emphasis added).

However, Section 303(a) states that the Commissioner, on his own initiative, may initiate a reexamination procedure.<sup>1</sup> He may determine whether a substantial new question of patentability has been raised by the request with or without consideration of *other patents* or printed publications, as well as those cited pursuant to Section 301. We note that the words "*prior art*," used in Sections 301 and 302, do not appear in this Section.

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<sup>1</sup> *Houston Atlas, Inc. v. Del Mar Scientific Inc.*, 217 USPQ 1032 at 1037 (DC NTex. 1982).

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The Statute refers to both patents and printed publications. Patents are printed as publications by most countries,<sup>2</sup> and if they are to be used only in such capacity then there would have been no reason for this redundancy. We must assume that Congress intended patents to also be the basis for rejection other than as a printed publication. Thus, patents may be used as evidence of prior inventorship by another or as evidence that the patentee of the reexamination patent has already obtained patent protection for his invention. The second patent would be barred by Section 101 if the inventions are identical or by the judicially-created doctrine of double patenting of the obviousness type, if there are only obvious differences between the claims

of the respective patents.

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<sup>2</sup> Manual of Patent Examining Procedure, 4th Ed., Aug. 1983, page 900-5, Section 901.05D(b), Unprinted Foreign Patents.

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However, Section 301 contains the limitation "prior art" to describe the patents and printed publications. Normally, "prior art" rejections exclude those based on public use or sale and those based on Section 112.<sup>3</sup>

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<sup>3</sup> *In re Etter*, 756 F.2d 852, 225 USPQ 1 (Fed.Cir. 1985) (at 4) states that ". . .only new or amended claims are also examined under 35 U.S.C. §§112 and 132, 37 CFR 1.552; MPEP §2258."

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[ 2 ] Where do "double patenting rejections of the obviousness type" fit in? Are they permissible under the reexamination statute, or are they, like public use and sale rejections, and Section 112 rejections (except as to new and amended claims), excluded? *In re Etter*, *supra*, states ( 225 USPQ at 4):

"Patent claims are reexamined only in light of patents and printed publications under 35 U.S.C. §§102, 103 . . . ."

Double patenting rejections are analogous to Section 103 rejections and depend on the presence of a prior "patent" as the basis for the rejection. Thus, we take the position that such rejection falls within the ambit of those intended by the statute and are not specifically excluded by the *Etter* case. Further, the *Etter* court focused on the question of presumption of validity with regard to a reexamination patent and its statement as to the scope of proper rejections in the evaluation of a reexamination patent are not the point of the ruling.

We now deal with the *merits* of the double patenting rejection. The rejection is based on the evidence that the general combination of oxygen and combustion analyzers used with sampling devices is known and that it would have been obvious to employ the particular oxygen analyzer defined in the claims of the Obiaya patent in combination with the sampling device. We believe that claims to such combination do not define a separate and distinct invention from the claims to the oxygen analyzer.

Appellant has indicated that it would be futile to add a terminal disclaimer to this reexamination application since this application has a patent date which is earlier than that of the other Obiaya patent. It appears that appellant's choice is clear. He may acquiesce in the double patenting rejection or he may file a terminal disclaimer in his other patent, assuming that the Obiaya patent and the present application are commonly owned.

The decision of the examiner is *affirmed*.

**AFFIRMED.**

- End of Case -

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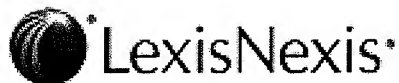
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LEXSEE 501 F.3D 1263



Analysis

As of: Feb 25, 2009

**FOREST LABORATORIES, INC., FOREST LABORATORIES HOLDING, LTD.,  
and H. LUNDBECK A/S, Plaintiffs-Appellees, v. IVAX PHARMACEUTICALS,  
INC. and CIPLA, LTD., Defendants-Appellants.**

**2007-1059****UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT*****501 F.3d 1263; 2007 U.S. App. LEXIS 21165; 84 U.S.P.Q.2D (BNA) 1099*****September 5, 2007, Decided**

**SUBSEQUENT HISTORY:** Rehearing denied by *Forest Labs., Inc. v. Ivax Pharms., Inc.*, 2007 U.S. App. LEXIS 26974 (Fed. Cir., Oct. 12, 2007)

**PRIOR HISTORY:** [\*\*1]

Appealed from: United States District Court for the District of Delaware. Judge Joseph J. Farnan, Jr. *Forest Labs., Inc. v. Ivax Pharms., Inc.*, 438 F. Supp. 2d 479, 2006 U.S. Dist. LEXIS 47985 (D. Del., 2006)

**DISPOSITION:** AFFIRMED.

**CASE SUMMARY:**

**PROCEDURAL POSTURE:** Defendants, alleged infringers, were the producer and marketer of a proposed generic version of a patented drug, appealed from orders of the United States District Court for the District of Delaware that upheld the validity of plaintiff patentee's reissue patent, and enjoining the alleged infringers from infringing the patent. filed an abbreviated new drug application under 21 U.S.C.S. § 355(j).

**OVERVIEW:** The alleged infringers sought to market

generic escitalopram oxalate, a selective serotonin reuptake inhibitor that was the active ingredient in the patentee's Lexapro branded drug. After a bench trial, the district court concluding that the alleged infringers had failed to prove that the patent was invalid as anticipated. The process that resulted in a relatively new and unpredictable technique at the time of the invention did not enable a prior reference. The alleged infringers also had failed to prove by clear and convincing evidence that any of the claims were obvious. The appellate court found that the prior reference was a pharmacology paper and did not enable the preparation, and any prima facie obviousness was rebutted. The court did modify the scope of the injunction. While the injunction could properly extend to the "approved drug," it should not extend to the remainder of the products covered by the patent. However, it was not inappropriate for the district court to include the prospective manufacturer of the generic within the scope of the injunction. Under the standards for inducement applied to 35 U.S.C.S. § 271(b), the injunction should cover both partners.

**OUTCOME:** The district court's entry of judgment of validity of the patent and its entry of an injunction as to both alleged infringers was affirmed; the scope of the

injunction was modified to apply only to escitalopram oxalate, and to delete the language any products that infringe the patent, from its scope.

#### LexisNexis(R) Headnotes

#### *Patent Law > Infringement Actions > Defenses > Experimental Use & Testing*

[HN1] See 35 U.S.C.S. § 271(e)(2)(A).

#### *Civil Procedure > Appeals > Standards of Review > Clearly Erroneous Review*

#### *Patent Law > Anticipation & Novelty > General Overview*

[HN2] Anticipation is a question of fact that is reviewed on appeal for clear error following a bench trial. Under the clear error standard, the court's findings will not be overturned in the absence of a definite and firm conviction that a mistake has been made. Whether a prior art reference is enabling is a question of law based upon underlying factual findings.

#### *Civil Procedure > Appeals > Standards of Review > Clearly Erroneous Review*

#### *Civil Procedure > Appeals > Standards of Review > De Novo Review*

#### *Patent Law > Nonobviousness > General Overview*

[HN3] Obviousness of a patent is a question of law, reviewed de novo, based upon underlying factual questions which are reviewed for clear error following a bench trial.

#### *Patent Law > U.S. Patent & Trademark Office Proceedings > Reissues > Broadening Reissues & Recapture*

[HN4] See 35 U.S.C.S. § 251.

#### *Patent Law > U.S. Patent & Trademark Office Proceedings > Reissues > Broadening Reissues & Recapture*

[HN5] A change in a reissue application that is only clerical does not necessarily broaden the scope of the claims and so does not render the patent invalid.

#### *Patent Law > Infringement Actions > Claim Interpretation > General Overview*

#### *Patent Law > U.S. Patent & Trademark Office Proceedings > Reissues > Broadening Reissues & Recapture*

[HN6] Comparison of the scope of reissue claims with the claims of the original patent is a matter of claim construction, and is performed from the perspective of one having ordinary skill in the art. Whether the claims of a reissue patent violate 35 U.S.C.S. § 251 is a question of law that an appellate court reviews de novo, based on underlying facts reviewed for clear error.

#### *Patent Law > Remedies > Equitable Relief > Injunctions*

[HN7] Although the standard of review for the issuance and scope of an injunction is abuse of discretion, whether the terms of the injunction fulfill the mandates of *Fed. R. Civ. P. 65(d)* is a question of law that this court reviews de novo.

#### *Patent Law > Remedies > Equitable Relief > Injunctions*

[HN8] See 35 U.S.C.S. § 271(e)(4)(B).

#### *Patent Law > Infringement Actions > Infringing Acts > Contributory, Indirect & Induced Infringement*

[HN9] The only difference in the analysis of a traditional infringement claim and a claim of infringement under 35 U.S.C.S. § 271(e)(2) is the time frame under which the elements of infringement are considered. An inquiry into induced infringement focuses on the party accused of inducement as the prime mover in the chain of events leading to infringement.

**COUNSEL:** John M. Desmarais, Kirkland & Ellis LLP, of New York, New York, argued for plaintiffs-appellees. With him on the brief were Peter J. Armenio, Gerald J. Flattmann, Jr., Ellen A. Scordino, and Anne S. Toker.

Henry C. Dinger, Goodwin Proctor LLP, of Boston, Massachusetts, argued for defendants-appellants. With him on the brief was Francis C. Lynch. Of counsel on the brief were Jeffrey S. Ward, and Thomas P. Heneghan, Michael Best & Friedrich LLP, of Madison, Wisconsin.

**JUDGES:** Before LOURIE, Circuit Judge, FRIEDMAN, Senior Circuit Judge, and SCHALL, Circuit Judge.

Opinion for the court filed by Circuit Judge LOURIE. Opinion concurring as to parts I through IV.A and dissenting as to part IV.B filed by Circuit Judge SCHALL.

## OPINION BY: LOURIE

### OPINION

[\*1265] LOURIE, *Circuit Judge*.

Ivax Pharmaceuticals, Inc. ("Ivax") and Cipla, Ltd. ("Cipla") appeal from the order of the United States District Court for the District of Delaware entering judgment upholding the validity of *United States Reissue Patent 34,712* ("the '712 patent") in favor of Forest Laboratories, Inc., Forest Laboratories Holding, Ltd., and H. Lundbeck A/S (collectively [\*\*2] "Forest") and enjoining Ivax and Cipla from infringing the '712 patent. We affirm the district court's entry of judgment on validity and its entry of an injunction as to both Ivax and Cipla, but we modify the injunction to apply only to escitalopram oxalate.

### BACKGROUND

Ivax filed Abbreviated New Drug Application 76-765 ("the ANDA") at the Food and Drug Administration, pursuant to 21 U.S.C. § 355(j) (§ 505(j) of the Federal Food, Drug, and Cosmetic Act), for approval to market generic tablets containing 5, 10, or 20 milligrams of escitalopram oxalate ("EO"). The ANDA certified, pursuant to 21 U.S.C. § 355(j)(2)(A)(vii)(IV), that the claims of the '712 patent are invalid and/or not infringed by the manufacture, use, or sale of the products for which approval was sought. Cipla is the intended supplier of EO for Ivax and contributed information for the filing of the ANDA. Forest filed suit on September 22, 2003, alleging that Ivax's filing of the ANDA infringed the '712 patent under 35 U.S.C. § 271(e)(2)(A).<sup>1</sup> Ivax filed its answer on October 15, 2003, denying infringement and counterclaiming for invalidity of the '712 patent. Forest later amended its complaint to add Cipla as a defendant [\*\*3] on May 27, 2004.

1 35 U.S.C. § 271(e)(2)(A) provides:

[HN1] It shall be an act of infringement to submit an application under section 505(j) of the Federal Food, Drug, and

Cosmetic Act or described in section 505(b)(2) of such Act for a drug claimed in a patent or the use of which is claimed in a patent if the purpose of such submission is to obtain approval under such Act to engage in the commercial manufacture, use, or sale of a drug or veterinary biological product claimed in a patent or the use of which is claimed in a patent before the expiration of such patent.

The '712 patent issued on August 30, 1994 and relates, *inter alia*, to a substantially pure (+)-enantiomer of citalopram (also referred to as "escitalopram") and nontoxic acid additional salts thereof. Stereoisomers are compounds that contain the same constituent atoms and the same bonding between those atoms but have different spatial arrangements. Enantiomers are stereoisomers that are nonsuperimposable mirror images of one another. Enantiomers accordingly exhibit different optical activity; the enantiomer that rotates a plane of polarized light in the clockwise direction is the (+)-enantiomer; the enantiomer that rotates a plane [\*\*4] of polarized light in the counterclockwise direction is the (-)-enantiomer. Enantiomers may also be designated as the S-enantiomer and the R-enantiomer according to a different criterion relating to the location of the chiral centers. In the case of citalopram, the (+)-enantiomer is also the S-enantiomer. A mixture of equal amounts of two enantiomers is [\*1266] called a racemic mixture or a racemate, and separating the two enantiomers from a racemate is referred to as resolving the compound. Forest also owned the now expired *U.S. Patent 4,136,193* on the racemic form of citalopram and *U.S. Patent 4,650,884* that claims a method for making racemic citalopram using an intermediate racemic 1,4-diol.

EO, which is the oxalate salt form of escitalopram, is one of the compounds encompassed by the claims of the '712 patent. It is an antidepressant by virtue of being a selective serotonin reuptake inhibitor and is the active ingredient in Forest's Lexapro (R) branded drug. Forest has alleged that Ivax and Cipla infringed claims 1, 3, 5, 7, 9 and 11 of the '712 patent by filing the ANDA. Independent claim 1 of the '712 patent reads as follows:

A compound selected from substantially

pure (+)-1-(3-Dimethylaminopropyl)-1-(4'-fluorophenyl)-1,3-dihydroisoindolizine-2-carbonitrile and non-toxic acid addition salts thereof.

'712 patent col.10 „,31-34. Dependent claim 11 recites a method of preparing the compound of claim 1 by cyclizing an intermediate diol.

The parties stipulated to a specific claim construction for the primary disputed term in the '712 patent, and, based on that agreement, the parties further stipulated that the proposed products included in the ANDA infringe claims 1, 3, 5, 7, and 9 of the '712 patent and that the proposed process for making those products infringes claim 11. Thus, the district court was only required to reach a determination with respect to the counterclaims, including those asserting that the claims are invalid for anticipation and obviousness, and that they were improperly broadened through reissue.

After a bench trial, the district court issued its decision on July 13, 2006, concluding that Ivax and Cipla had failed to prove that the '712 patent is invalid as anticipated. Specifically, the court found that an article by Donald F. Smith ("Smith") entitled *The Stereoselectivity of Serotonin Uptake in Brain Tissue and Blood Platelets: The Topography of the Serotonin Uptake Area* ("Smith reference") did not anticipate [\*6] claim 1 of the '712 patent because it did not disclose "substantially pure" escitalopram as claimed in claim 1 and it did not enable a person having ordinary skill in the art to obtain that compound. The court found that chiral High Performance Liquid Chromatography ("HPLC") was a relatively new and unpredictable technique at the time of the invention and that Smith had worked with the founder of the field of chiral HPLC to separate the enantiomers of citalopram near the time of the invention, but had failed in his efforts. The court also found that a team of chemists at Lundbeck had unsuccessfully attempted to use chiral HPLC to resolve citalopram for two years and that Dr. Danishefsky, Forest's medicinal chemistry expert, had unsuccessfully tried to resolve compounds with HPLC in the mid-1980's. The court also found that an inventor of the '712 patent, Dr. Bogeso, had conducted numerous experiments attempting to resolve racemic citalopram through the method of diastereomeric salt formation, but had also failed. Finally, the court found that Dr. Bogeso only attempted to resolve citalopram using a diol intermediate, as recited in claim 11 of the '712 patent, as

a last resort and that [\*7] others of skill in the art would not have readily hesitated because there was a real possibility that the resolved intermediate would re-racemize during the attempt to convert it from the diol intermediate enantiomer to the desired citalopram enantiomer. Thus, the court found that attempting to separate the enantiomers of citalopram based on the knowledge of one of ordinary skill in [\*1267] the art would have required undue experimentation and that the Smith reference was therefore not enabled.

Next, the district court concluded that Ivax and Cipla had failed to prove by clear and convincing evidence that any of the asserted claims of the '712 patent were obvious. The court found that one of ordinary skill in the art at the time of the invention would generally have been motivated to develop new compounds rather than undertake the difficult and unpredictable task of resolving a known racemate. The court further found that a person of ordinary skill attempting to resolve racemic citalopram would have had no reasonable expectation of success for reasons similar to those discussed with respect to enablement of the Smith reference. With respect to the method of claim 11 of the '712 patent, the court [\*8] found that none of the articles relied upon by Ivax and Cipla described the particular types of reactions claimed (viz., "a Mosher ester serving as a leaving group for a ring closure of a Diol Intermediate," "an enantioconserving ring closure of a diol containing a tertiary amine to form a tetrahydrofuran," or "an enantioconserving cyclization reaction of the type needed to convert a tertiary amine like any enantiomerically pure Diol Intermediate into substantially pure (+)-citalopram"). The court also found that secondary considerations of commercial success, unexpected results, and copying by others supported the validity of the claims.

In addition, the district court found that claim 11 of the '712 patent was not invalid for impermissible broadening during reissue. During the reissue proceeding that resulted in the '712 patent, claim 11 was corrected to claim a method of converting a (-)-diol intermediate to (+)-citalopram, rather than using a (+)-diol intermediate as shown in the original patent claim. The court found that, given the specific description of the process in the specification, this change amounted to correction of a typographical error. In other words, the court found [\*9] that the mistake would have been clear to one of ordinary skill in the art reviewing the patent, and therefore that it did not constitute a change in scope from

the original claim.

The court entered judgment in accordance with its opinion on November 3, 2006 and at the same time enjoined both Ivax and Cipla "from commercially making, using, offering to sell or selling within the United States, or importing into the United States any products that infringe the '712 patent, including the escitalopram oxalate products referred to in the Abbreviated New Drug Application No. 76-765 until such time as the '712 patent expires." Ivax and Cipla timely appealed. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

## DISCUSSION

### I. Anticipation

On appeal, Ivax and Cipla argue that the Smith reference clearly anticipates claim 1 of the '712 patent because it discusses and analyzes the efficacy of various drug enantiomers and predicts that one citalopram enantiomer will be more potent as a serotonin reuptake inhibitor than the other. Ivax and Cipla further argue that one of ordinary skill in the art would have known at the time of the invention to use diastereomeric salt formation to resolve citalopram. [\*\*10] Specifically, a person of skill in the art would have used the method described in the Wilen reference to resolve the racemic intermediate diol into its enantiomers and the method in the Jacobus reference (Williamson ether synthesis) to convert the diol enantiomer (by cyclizing the ether ring) to (+)-citalopram. Ivax and Cipla add that Dr. Borges's ability to resolve citalopram on his first try after [\*1268] starting with the diol intermediate is further compelling evidence that only routine experimentation was required to separate the enantiomers.

In response, Forest argues that the Smith reference does not disclose "substantially pure" (+)-citalopram. Forest also argues that the testimony of the experts and the repeated failures of Dr. Borges and others to resolve citalopram into its enantiomers support the district court's determination that the Smith reference was not enabled for (+)-citalopram. Forest also states that the court was correct to conclude that a person of ordinary skill would have viewed the difficulty in resolving the diol intermediate rather than citalopram itself as significant and a deterrent. In addition, Forest argues that even if a person of skill in the art were [\*\*11] to consider using the diol, the Wilen and Jacobus references do not involve

compounds with structures similar enough to the citalopram diol intermediate so that a person of ordinary skill would rely upon them to predict the results of a reaction with that compound. More specifically, Forest argues that neither reference discloses a cyclizing reaction involving a compound, like the citalopram diol, that has a resident tertiary amine or a benzylic alcohol.

[HN2] Anticipation is a question of fact that we review for clear error following a bench trial. *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 457 F.3d 1293, 1304 (Fed. Cir. 2006). "Under the clear error standard, the court's findings will not be overturned in the absence of a definite and firm conviction that a mistake has been made." *Impax Labs., Inc. v. Aventis Pharm. Inc.*, 468 F.3d 1366, 1375 (Fed. Cir. 2006) (quotation omitted). "Whether a prior art reference is enabling is a question of law based upon underlying factual findings." *Id.* at 1382 (quoting *Minn. Mining & Mfg. Co. v. Chemque, Inc.*, 303 F.3d 1294, 1301 (Fed. Cir. 2002)).

We agree with Forest that the district court's factual findings relating to enablement of the Smith reference [\*\*12] are not clearly erroneous, and, based upon those findings, we find no error in the district court's conclusion that the Smith reference is not enabled with respect to (+)-citalopram. The Smith reference is a pharmacology paper, not a chemical paper. It describes the effects of various enantiomers of particular drugs (not including (+)-citalopram) on the uptake of serotonin in brain tissue and/or platelets. It mentions racemic citalopram ("also of interest") and shows its structure, but predicts, incorrectly, that the R-enantiomer (the (-)-enantiomer for citalopram, not the one claimed in the '712 patent) should be far more potent as a serotonin reuptake inhibitor. Because a racemate does encompass its two enantiomers, it in effect does state that there is a (+)-enantiomer of citalopram, but it does not tell how to obtain it. A reference that is not enabling is not anticipating. *Elan Pharm., Inc. v. Mayo Found. For Med. Educ. & Research*, 346 F.3d 1051, 1054 (Fed. Cir. 2003). The Smith reference, as a pharmacology paper, thus does not enable the preparation of the (+)-enantiomer of citalopram.

Ivax and Cipla acknowledge that the Smith reference itself does not teach one of ordinary skill [\*\*13] how to make (+)-citalopram, but their arguments that it is enabled by other references are largely a recounting of the testimony favorable to their theory of the case without

explanation as to why we should have a definite and firm conviction that mistakes were made by the district court in its fact-finding. In other words, they do not inform us why the district court was not entitled to rely on the evidence favorable to Forest or demonstrate that the evidence favorable to them heavily outweighed the evidence favorable to Forest. Such evidence includes the failures of various scientists to resolve [\*1269] citalopram as recited above. Given Ivax and Cipla's failure to disturb the detailed and thorough factual findings underlying the district court's decision, we see no error in the finding that the Smith reference does not enable one of ordinary skill to make (+)-citalopram and hence that the Smith reference does not anticipate claims to (+)-citalopram.

## II. *Obviousness*

Ivax and Cipla argue that (+)-citalopram was obvious in light of racemic citalopram and descriptions of techniques available to separate enantiomers from their racemates. Further, they argue that the general expectation in the [\*14] art that one enantiomer would be more potent than the other provided reason for a person of ordinary skill in the art to isolate the enantiomers. For reasons similar to those discussed with respect to their argument that the Smith reference was enabled, Ivax and Cipla contend that a person of ordinary skill in the art would have had a reasonable expectation that one could separate the enantiomers of citalopram. Ivax and Cipla also argue that Lexapro's (R) commercial success was due to aggressive marketing rather than any alleged superiority of the drug to alternatives and that it did not possess unexpectedly superior properties. Ivax and Cipla also argue that claims 3, 5, 7, and 9 represent only obvious variations on claim 1 with no elements that are not standard in medicinal chemistry and that claim 11 represents the obvious way of resolving citalopram in light of the teaching of the Wilen and Jacobus references.

In response, Forest argues that any *prima facie* obviousness based on racemic citalopram was rebutted by the evidence demonstrating the difficulty of separating the enantiomers and the unexpected properties of (+)-citalopram. Forest argues that it was unexpected that all of [\*15] the therapeutic benefit of citalopram would reside in the (+)-enantiomer, resulting in escitalopram having twice the potency of racemic citalopram. Forest also argues that the district court was entitled to credit evidence that a person of ordinary skill in the art would

not easily have turned to the diol intermediate to attempt resolution of racemic citalopram both because of the uncertainty involved and because Wilen and Jacobus describe compounds less complex than those necessary here to resolve the diol intermediate and then convert the (-)-diol enantiomer to escitalopram.

[HN3] "Obviousness is a question of law, reviewed *de novo*, based upon underlying factual questions which are reviewed for clear error following a bench trial." *Leapfrog Enter., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1160 (Fed. Cir. 2007) (quoting *Alza Corp. v. Mylan Labs., Inc.*, 464 F.3d 1286, 1289 (Fed. Cir. 2006)).

We agree with Forest that the district court's key factual findings underlying its conclusions on obviousness are not clearly erroneous, and, based upon those findings, we find no error in the court's conclusion that the asserted claims of the '712 patent are not invalid for obviousness. As with their [\*16] arguments on anticipation, Ivax and Cipla mainly emphasize the evidence that is favorable to their desired outcome without addressing the evidence favorable to Forest. The latter includes the failure of the inventors and others to resolve citalopram without undue experimentation and the testimony of Forest's experts. The district court applied the *Graham* factors to conduct a thorough analysis of the evidence, and we find no clear error on facts and no error of law. *See Graham v. John Deere Co.*, 383 U.S. 1, 86 S. Ct. 684, 15 L. Ed. 2d 545 (1966). These findings fully support the conclusion that the claimed subject matter would not have been obvious to one of ordinary skill in the art.

## [\*1270] III. *Broadening Reissue*

Ivax and Cipla argue that claim 11 of the '712 patent is invalid because it represents a broadening of original claim 11. They argue that the change in the optical rotation sign of the diol intermediate in claim 11 during reissue was clearly a broadening of the claim because the claim now covers a process beginning with a different enantiomer. Ivax and Cipla also argue that a typographical error may nonetheless be broadening and that a typographical error must be evident to the general public in order to serve the [\*17] public notice function of patents. In response, Forest argues that the district court correctly determined that the reissue application corrected a typographical error that was readily apparent to one of ordinary skill in the art reviewing the patent and

therefore did not result in any change in the scope of the patent.

The reissue statute reads as follows:

[HN4] Whenever any patent is, through error without any deceptive intention, deemed wholly or partly inoperative or invalid, by reason of . . . the patentee claiming more or less than he had a right to claim in the patent, the Director shall . . . reissue the patent for the invention disclosed in the original patent . . . for the unexpired part of the term of the original patent. . . . No reissued patent shall be granted enlarging the scope of the claims of the original patent unless applied for within two years from the grant of the original patent.

### 35 U.S.C. § 251.

The '712 reissue patent resulted from an application filed more than two years after the grant of the original patent, and the claims of a reissue patent filed after that date are invalid if they enlarge the scope of the original claims. *See 35 U.S.C. § 282; Quantum Corp. v. Rodime PLC*, 65 F.3d 1577, 1583 (Fed. Cir. 1995). [\*\*18] However, [HN5] a change in a reissue application that is only clerical does not necessarily broaden the scope of the claims and so does not render the patent invalid. The question before us is whether the change effected in the reissue application here broadened the scope of claim 11 or merely clarified or corrected the original claim.

[HN6] Comparison of the scope of the reissue claims with the claims of the original patent is a matter of claim construction, and it is performed from the perspective of one having ordinary skill in the art. *See Pannu v. Storz Instruments, Inc.*, 258 F.3d 1366, 1370 (Fed. Cir. 2001); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). Whether the claims of a reissue patent violate 35 U.S.C. § 251 is a question of law that we review *de novo* based on underlying facts reviewed for clear error. *Medtronic, Inc. v. Guidant Corp.*, 465 F.3d 1360, 1373 (Fed. Cir. 2006).

We agree with Forest that the change in the optical rotation sign for the diol intermediate in claim 11 of the '712 patent did not broaden the scope of the claim. The patent specification supports, even compels, this

conclusion. In Reaction Scheme I, the process begins with a racemic mixture [\*\*19] of the diol intermediate. *See '712 patent* col.5 ll.41-42. The diagram of Reaction Scheme I reinforces that conclusion because it includes a notation next to the diagram of the diol intermediate that reads "(+) and (-)." *'712 patent* (emphasis added). The patent then describes a reaction sequence that results in production of "the ester as a diastereomeric mixture." *Id.* at col.5 ll.47-48. It is the diastereomeric mixture of an ester (of a monoalcohol) that is then subjected to HPLC to produce an enantiomerically pure compound that can be converted into the desired (+)-citalopram end product. *Id.* at col.5 ll.47-59. Further, as found by the district court, because Reaction Scheme I begins with the racemate of the [\*1271] diol intermediate, the patent is ambiguous as to which enantiomer of the diol intermediate is actually converted to (+)-citalopram.

In contrast, while the description of Reaction Scheme II also begins with the racemate of the diol intermediate, it is the diol intermediate itself that is resolved to produce an enantiomerically pure product compound. *Id.* at col.6 ll.8-33. The description also specifically describes using the (-)-diol intermediate to produce (+)-citalopram. *Id.* at [\*\*20] col.6 ll.29-42. Further support is again provided by the diagram of Reaction Scheme II, which includes a notation that reads "(-) or (+)" next to the structural diagram of citalopram. *'712 patent* (emphasis added). Thus, the enantiomeric labeling for the end product is reversed from that of the starting compound. Given this plain reading and the additional supporting expert testimony also relied upon by the district court, we see no error in the district court's finding that a person of ordinary skill in the art reviewing the patent would find the error in claim 11 relating to the optical sign of the diol intermediate apparent. The diagram of Reaction Scheme II makes clear that it is the (-)-diol that is converted to (+)-citalopram and that the correction in the claim corresponds to the disclosure in the specification. We therefore agree that the change in the optical sign during reissue does not represent a change of claim scope, but merely a correction of the claim to be consistent with the disclosure of the specification.

### IV. The Scope of the Injunction

Ivax and Cipla argue that the language of the injunction is overly broad in extending to "any products that infringe the '712 patent." [\*\*21] Also, they argue



that the artificial act of infringement created by 35 U.S.C. § 271(e)(2)(A) is narrow and that Cipla's provision of information to Ivax for its filing of the ANDA is not an act of infringement. Ivax and Cipla further argue that the injunction granted by the district court violates our holding in *International Rectifier Corp. v. IXYS Corp.*, 383 F.3d 1312, 1316 (Fed. Cir. 2004). Forest responds that the injunction is sufficiently narrowly defined because of the infringement stipulation of the parties and the detailed record. Forest also argues that because Cipla will manufacture and import the EO products described in the ANDA if it is approved, Cipla may properly be enjoined for inducement of infringement.

#### A. Scope of Products

We do not agree with the scope of the district court's injunction that includes products other than escitalopram oxalate. [HN7] "Although the standard of review for the issuance and scope of an injunction is abuse of discretion, whether the terms of the injunction fulfill the mandates of *Federal Rule of Civil Procedure 65(d)* is a question of law that this court reviews de novo." *Signtech USA, Ltd. v. Vutek, Inc.*, 174 F.3d 1352, 1356 (Fed. Cir. 1999). [\*\*22] In *International Rectifier*, we held that "the only acts [an] injunction may prohibit are infringement of the patent by the adjudicated [products] and infringement by [products] not more than colorably different from the adjudicated [products]. 383 F.3d at 1316. In order to comply with *Rule 65(d)*, the injunction should explicitly proscribe only those specific acts."

Here, the '712 patent covers a range of products beyond those described in the ANDA. The statute, 35 U.S.C. § 271(e)(4)(B), provides that [HN8] "injunctive relief may be granted against an infringer to prevent the commercial manufacture, use, offer to sell, or sale within the United States or importation into the United States of an approved drug." Thus, while the injunction may properly extend to the [\*1272] "approved drug," it should not extend to the remainder of the products covered by the patent. The injunction is therefore modified to delete the language "any products that infringe the '712 patent, including."

#### B. Inclusion of Cipla

However, we find that it was not inappropriate for the district court to include Cipla within the scope of the injunction. Section 271(e)(2) may support an action for induced infringement. *Allergan, Inc. v. Alcon Labs., Inc.*,

324 F.3d 1322, 1331 (Fed. Cir. 2003). [\*\*23] [HN9] "The only difference in the analysis of a traditional infringement claim and a claim of infringement under section 271(e)(2) is the timeframe under which the elements of infringement are considered." *Id.* An inquiry into induced infringement focuses on the party accused of inducement as the prime mover in the chain of events leading to infringement. Here, we do not know if Cipla first approached Ivax or vice versa, but the plan to manufacture, import, market, and sell the EO products described in the ANDA was undoubtedly a cooperative venture, and Cipla was to manufacture and sell infringing EO products to Ivax for resale in the United States. Under the standards for inducement which we apply to 35 U.S.C. § 271(b), Cipla has therefore actively induced the acts of Ivax that will constitute direct infringement upon approval of the ANDA, and it was thus not inappropriate for the district court to include Cipla within the scope of the injunction.

The dissent asserts that § 271(e)(1) exempts Cipla from being enjoined with Ivax. We disagree. Cipla is providing information, and will provide material, that Ivax will use to obtain FDA approval. Up to that point, there is indeed no infringement. [\*\*24] And, in fact, Ivax is not currently liable for infringement, as long as it is only pursuing FDA approval, not commercially manufacturing or selling the infringing product. However, just as Ivax will be liable for, and hence is being enjoined from, the commercial exploitation of escitalopram when it is approved by the FDA and during the life of the patent, so should Cipla be enjoined. They are partners. Cipla would be contributing to the infringement by Ivax, so the injunction should cover both partners. It is true that, as the dissent states, § 271(e)(2) defines Ivax's filing of its ANDA as an infringement, and Cipla did not file the ANDA; however, when the question of an injunction against commercial activity arises, Cipla is as culpable, and hence entitled to be enjoined, as Ivax.

#### CONCLUSION

For the reasons stated, we affirm the district court's grant of judgment of no invalidity of the '712 patent and the entry of injunction, as modified herein, as to both Ivax and Cipla pursuant to the stipulation of infringement.

#### AFFIRMED

CONCUR BY: SCHALL (In-Part)

**DISSENT BY: SCHALL (In-Part)****DISSENT**

SCHALL, *Circuit Judge*, dissenting-in-part.

I join the court's opinion insofar as it (i) affirms the judgment of non-invalidity of the '712 patent [\*\*25] and (ii) modifies the scope of the injunction issued by the district court. However, I respectfully dissent from the court's opinion insofar as it affirms the district court's entry of an injunction as to Cipla.

Ivax filed its ANDA seeking approval to market generic tablets containing escitalopram oxalate. *See Forest Labs., Inc. v. Ivax Pharms., Inc.*, 438 F. Supp. 2d 479, 484 [\*1273] (D. Del. 2006). Under the statutory framework set forth by Congress:

It shall be an act of infringement to submit

(A) an application under section 505(j) of the Federal Food, Drug, and Cosmetic Act or described in section 505(b)(2) of such Act for a drug claimed in a patent or the use of which is claimed in a patent, or

(B) an application under section 512 of such Act or under the Act of March 4, 1913 (21 U.S.C. 151-158) for a drug or veterinary biological product which is not primarily manufactured using recombinant DNA, recombinant RNA, hybridoma technology, or other processes involving site specific genetic manipulation techniques and which is claimed in a patent or the use of which is claimed in a patent,

if the purpose of such submission is to obtain approval under such Act to engage in the commercial manufacture, [\*\*26] use, or sale of a drug or veterinary biological product claimed in a patent or the use of which is claimed in a patent before the expiration of such patent.

35 U.S.C. § 271(e)(2). By its terms, the statute limits the act of infringement to the filing of an ANDA application.

At the same time, 35 U.S.C. § 271(e)(4)(B) provides that "injunctive relief may be granted *against an infringer* to prevent the commercial manufacture, use, offer to sell, or sale within the United States or importation into the United States of an approved drug or veterinary biological product." (Emphasis added).

In interpreting a statute, we presume that Congress intended to give words their ordinary meanings. *Asgrow Seed Co. v. Winterboer*, 513 U.S. 179, 187, 115 S. Ct. 788, 130 L. Ed. 2d 682 (1995). In § 271(e)(2), Congress chose to employ the clause "[i]t shall be an act of infringement to submit." The plain language of § 271(e)(2) thus compels the conclusion that an action for infringement may lie based upon the filing of an ANDA. By filing its ANDA, Ivax committed an act constituting infringement under § 271(e)(2) and, as an infringer, was properly enjoined under § 271(e)(4)(B).

Cipla provided information to Ivax that was included in the ANDA, [\*\*27] and if the ANDA were approved, Cipla would manufacture the escitalopram oxalate used in the proposed generic drugs. *Forest*, 438 F. Supp. 2d at 484. In contrast to what IVAX did in this case, Cipla's involvement--limited to providing information to IVAX that was included in the submission of the ANDA--seems akin to the activity protected by *paragraph (e)(1)* of the statute, which provides that:

It shall not be an act of infringement to make, use, offer to sell, or sell within the United States or import into the United States a patented invention . . . solely for uses reasonably related to the development and submission of information under a Federal law which regulates the manufacture, use, or sale of drugs or veterinary biological products.

35 U.S.C. § 271(e)(1). The Supreme Court has stated that "§ 271(e)(1)'s exemption from infringement extends to all uses of patented inventions that are reasonably related to the development and submission of *any* information under the [Federal Food, Drug, and Cosmetic Act]." *Merck KGaA v. Integra Lifesciences I, Ltd.*, 545 U.S. 193, 202, 125 S. Ct. 2372, 162 L. Ed. 2d 160 (2005). In short, Congress made it an act of infringement to file an ANDA, but exempted from infringement acts reasonably [\*\*28] related to the development [\*1274] and filing of an ANDA, such as those of Cipla here.

In holding that it was not inappropriate for the district court to include Cipla within the scope of the injunction, the court relies on *Allergan, Inc. v. Alcon Labs, Inc.*, 324 F.3d 1322 (Fed. Cir. 2003), for the proposition that § 271(e)(2) may support an action for induced infringement. Maj. op. at 15. I think *Allergan* is distinguishable on its facts. In *Allergan*, we held as a general matter that § 271(e)(2) may support an action for induced infringement.<sup>1</sup> However, in *Allergan* the defendant was the party that submitted the ANDA. 324 F.3d at 1332 ("[S]ummary judgment of non-infringement under section 271(e)(2)[] is inappropriate where the plaintiff can demonstrate the existence of a genuine issue of material fact with respect to the claim that the ANDA filer will induce infringement of its patent upon approval of the ANDA." (emphasis added)). In other words, the court was presented with the question of whether § 271(e)(2) may support an action where the ANDA filer would induce infringement if the ANDA were approved.

<sup>1</sup> In *Allergan*, a drug manufacturer, Allergan, who held a patent for a method of using a specified [\*\*29] drug for a particular purpose

brought an infringement action against two competitors, Alcon and Bausch & Lomb, who filed ANDAs seeking approval for the production of a generic version of the drug for a use different from the method of use of the drug claimed in the patent. Allergan brought its suit under 35 U.S.C. § 271(e)(2), alleging that if the FDA approved Alcon's and Bausch & Lomb's ANDAs, Alcon and Bausch & Lomb would induce doctors to infringe Allergan's patents by prescribing the drug for the patented method of use and would induce patients to infringe by using the drug for the patented method of use.

I am unable to agree that *Allergan* supports the proposition that, standing alone, what Cipla did here (providing information used in the filing of an ANDA) can form the basis for a cause of action under § 271(e)(2). In my view, that proposition goes beyond the language of § 271(e)(2). Accordingly, I respectfully dissent from that part of the court's opinion that affirms the district court's action enjoining Cipla.





LEXSEE 383 U.S. 1



Caution

As of: Mar 10, 2009

**GRAHAM ET AL. v. JOHN DEERE CO. OF KANSAS CITY ET AL.**

No. 11

**SUPREME COURT OF THE UNITED STATES**

*383 U.S. 1; 86 S. Ct. 684; 15 L. Ed. 2d 545; 1966 U.S. LEXIS 2908; 148 U.S.P.Q. (BNA) 459*

**October 14, 1965, Argued**  
**February 21, 1966, Decided \***

\* Together with No. 37, *Calmar, Inc. v. Cook Chemical Co.*, and No. 43, *Colgate-Palmolive Co. v. Cook Chemical Co.*, also on certiorari to the same court.

**PRIOR HISTORY:** CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE EIGHTH CIRCUIT.

**DISPOSITION:** *333 F.2d 529*, affirmed; *336 F.2d 110*, reversed and remanded.

**CASE SUMMARY:**

**PROCEDURAL POSTURE:** Two decisions of the United States Court of Appeals for the Eighth Circuit were consolidated on appeal to consider the effect of the Patent Act of 1952, *35 U.S.C.S. § 103*, on the validity of patents. One decision granted judgment for respondents in petitioners' patent infringement suit, and the other affirmed judgment for respondent, who brought cross actions for infringement in petitioners' consolidated declaratory judgment actions.

**OVERVIEW:** Two appeals were consolidated to review the validity of patents in light of the Patent Act of 1952, *35 U.S.C.S. § 103*, which provided that in determining the patentability of a device it was necessary to consider

not only its novelty and utility, but also its obviousness to one of ordinary skill in the art. The court affirmed a circuit court judgment in favor of respondents in petitioners' plow clamp patent infringement suit, and reversed a decision affirming judgment for respondent, who brought cross actions for infringement of its sprayer patent in petitioners' consolidated declaratory judgment suits. On appeal, the court held that *§ 103* placed an emphasis on the factor of obviousness but did not lower the level of patentable invention. The court then examined the patents in question in light of the prior art and determined that the plow clamp patent in the first case was invalid because there were no operative mechanical distinctions, much less nonobvious differences in petitioners' device, and the sprayer patent in the second two cases was also invalid because its invention rested on small, nontechnical differences in a device that was otherwise old in the art.

**OUTCOME:** The court affirmed judgment in favor of respondent plow manufacturers and reversed judgments in favor of respondent and its patented sprayer, applying its finding that the Patent Act of 1952 did not change the

383 U.S. 1, \*, 86 S. Ct. 684, \*\*;  
15 L. Ed. 2d 545, \*\*\*; 1966 U.S. LEXIS 2908

general level of patentable invention, and holding that the inventions in question were invalid because their obviousness would be evident to one of ordinary skill in the pertinent art.

#### **LexisNexis(R) Headnotes**

*Patent Law > Nonobviousness > Elements & Tests > Claimed Invention as a Whole*

*Patent Law > Nonobviousness > Elements & Tests > Prior Art*

[HN1] See 35 U.S.C.S. § 103.

*Patent Law > Claims & Specifications > Enablement Requirement > General Overview*

*Patent Law > Nonobviousness > Elements & Tests > Ordinary Skill Standard*

*Patent Law > Nonobviousness > Elements & Tests > Prior Art*

[HN2] Under the Patent Act of 1952, 35 U.S.C.S. § 103, patentability is to depend, in addition to novelty and utility, upon the non-obvious nature of the subject matter sought to be patented to a person having ordinary skill in the pertinent art.

*Patent Law > Inequitable Conduct > Effect, Materiality & Scienter > General Overview*

*Patent Law > Nonobviousness > Elements & Tests > Prior Art*

*Patent Law > Nonobviousness > Elements & Tests > Secondary Considerations*

[HN3] While the ultimate question of patent validity is one of law, the condition set forth in the Patent Act of 1952, 35 U.S.C.S. § 103, which is but one of three conditions, each of which must be satisfied, lends itself to several basic factual inquiries: (1) the scope and content of the prior art are to be determined; (2) differences between the prior art and the claims at issue are to be ascertained, and (3) the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or

nonobviousness, these inquiries may have relevancy.

*Patent Law > Nonobviousness > Elements & Tests > General Overview*

[HN4] Although the inquiry which the U.S. Patent Office and the courts must make as to patentability must be beamed with greater intensity on the requirements of the Patent Act of 1952, 35 U.S.C.S. § 103, there is no change in the general strictness with which the overall test is to be applied.

*Patent Law > Infringement Actions > Claim Interpretation > General Overview*

*Patent Law > Infringement Actions > Prosecution History Estoppel > General Overview*

[HN5] An invention is construed not only in the light of the claims, but also with reference to the file wrapper or prosecution history in the U.S. Patent Office. Claims as allowed must be read and interpreted with reference to rejected ones and to the state of the prior art; and claims that have been narrowed in order to obtain the issuance of a patent by distinguishing the prior art cannot be sustained to cover that which was previously by limitation eliminated from the patent.

#### **SUMMARY:**

In No. 11, the patentee and a licensee under a patent on a clamp for vibrating shank plows brought a patent infringement suit in the United States District Court for the Western District of Missouri. The District Court found the patent valid and infringed (216 F Supp 272), but the United States Court of Appeals for the Eighth Circuit reversed. (333 F2d 529.) In Nos. 37 and 43, consolidated actions brought in the United States District Court for the Western District of Missouri for judgments declaring invalid a patent on a plastic finger sprayer with a hold-down overcap, the patent was sustained by the District Court (220 F Supp 414), and the United States Court of Appeals for the Eighth Circuit affirmed. (336 F2d 110.)

On certiorari, the Supreme Court of the United States affirmed in No. 11 and reversed in Nos. 37 and 43. In an opinion by Clark, J., expressing the unanimous view of the Court, it was held that (1) 103 of the Patent Act of 1952, providing that a patent may not be obtained if the subject matter would have been obvious to a person with ordinary skill in the art, codified existing judicial

383 U.S. 1, \*, 86 S. Ct. 684, \*\*;  
15 L. Ed. 2d 545, \*\*\*; 1966 U.S. LEXIS 2908

precedents without affecting the required general level of innovation, and (2) both patents were invalid under 103, since the differences between them and the pertinent prior art would have been obvious to a person reasonably skilled in that art.

Stewart, J., did not participate in Nos. 37 and 43.

Fortas, J., did not participate in any of the cases.

#### LAWYERS' EDITION HEADNOTES:

[\*\*\*LEdHN1]

PATENTS §19

patentability -- mechanical skill --

Headnote:[1A][1B]

The Patent Act of 1952 (66 Stat 792, ch 950) is intended to codify judicial precedents embodying the principle that a patentable invention must evidence more ingenuity and skill than that possessed by an ordinary mechanic acquainted with the business.

[\*\*\*LEdHN2]

PATENTS §19.1

patentability -- obviousness --

Headnote:[2A][2B]

Although 103 of the Patent Act of 1952 ( 35 USC 103) places emphasis on an inquiry into obviousness by providing that a patent may not be obtained if the subject matter "would have been obvious at the time the invention was made to a person having ordinary skill in the art," the general level of innovation necessary to sustain the patentability remains the same as before the statute was enacted.

[\*\*\*LEdHN3]

PATENTS §2

congressional power -- constitutional limitations --

Headnote:[3]

Article 1 8 of the Constitution, authorizing Congress to promote the progress of the useful arts by securing for

limited times to inventors the exclusive right to their discoveries, is both a grant of power and a limitation; the limitation to the promotion of advances in the "useful arts" precludes Congress from enlarging the patent monopoly without regard to the innovation, advancement, or social benefit gained thereby and from authorizing the issuance of patents whose effects are to remove existent knowledge from the public domain or to restrict free access to materials already available.

[\*\*\*LEdHN4]

PATENTS §140

validity --

Headnote:[4]

The question of patent validity requires reference to a standard written into the Constitution.

[\*\*\*LEdHN5]

PATENTS §2

congressional power --

Headnote:[5]

Within the scope and limits of Article 1 8 authorization to Congress to promote the useful arts by securing for limited times to inventors the exclusive right to their discoveries, Congress may set out conditions and tests for patentability.

[\*\*\*LEdHN6]

UNITED STATES §16

congressional powers --

Headnote:[6]

As a corollary to the grant of any power under Article 1 of the Constitution, Congress may implement the stated constitutional purpose by selecting the policy which in its judgment best effectuates the constitutional aim.

[\*\*\*LEdHN7]

COURTS §118.5

383 U.S. 1, \*, 86 S. Ct. 684, \*\*;  
15 L. Ed. 2d 545, \*\*\*LEdHN7; 1966 U.S. LEXIS 2908

### PATENTS §3

effectuating congressional scheme --

Headnote:[7]

It is the duty of the Commissioner of Patents and of the courts in the administration of the patent system to give effect to the constitutional standard by appropriate application, in each case, of the statutory scheme of Congress.

[\*\*\*LEdHN8]

### PATENTS §18

### PATENTS §19.1

### PATENTS §55

conditions of patentability --

Headnote:[8]

Under the Patent Act of 1952 (66 Stat 792, ch 950), patentability is dependent upon three explicit conditions: novelty and utility, as articulated and defined in *35 USC 101* and *102*, and nonobviousness, as set out in *35 USC 103*.

[\*\*\*LEdHN9]

### PATENTS §16

patentability -- flash of genius --

Headnote:[9]

The provision of *35 USC 103* that "patentability shall not be negated by the manner in which the invention was made" is intended to abolish the test of patentability expressed in the controversial phrase "flash of creative genius."

[\*\*\*LEdHN10]

### PATENTS §19.1

test of obviousness --

Headnote:[10]

The condition of patentability announced in *35 USC 103*, providing that a patent may not be obtained if the

subject matter "would have been obvious at the time the invention was made to a person having ordinary skill in the art," emphasizes nonobviousness in the light of inquiry, not quality, and as such comports with the constitutional strictures.

[\*\*\*LEdHN11]

### PATENTS §19.1

### TRIAL §154

patent validity -- obviousness --

Headnote:[11]

While the ultimate question of patent validity is one of law, the condition of *35 USC 103* that a patent may not be obtained if the subject matter "would have been obvious at the time the invention was made to a person having ordinary skill in the art" lends itself to several basic factual inquiries, since the obviousness or nonobviousness of the subject matter is determined against the background of the scope and content of the prior art, the differences between the prior art and the claims at issue, and the level of ordinary skill in the pertinent art; moreover, relevant indicia of obviousness or nonobviousness may be found in such secondary considerations as commercial success, long felt but unsolved needs, the failure of others, etc.

[\*\*\*LEdHN12]

### PATENTS §19.1

nonobviousness test --

Headnote:[12]

The nonobviousness test, created by the provision in *35 USC 103* that a patent may not be obtained if the subject matter "would have been obvious at the time the invention was made to a person having ordinary skill in the art," is not likely to be applied with uniformity of thought in every factual context, but should be amenable to a case-by-case development.

[\*\*\*LEdHN13]

### PATENTS §3

unpatentable material --



Headnote:[13]

The primary responsibility for sifting out unpatentable material lies in the Patent Office.

[\*\*\*LEdHN14]

PATENTS §19.1

patent on shank plow clamp -- obviousness --

Headnote:[14]

A patent on a clamp for vibrating shank plows, which differed from the prior art only in that the shank was placed below rather than above the hinge plate, and the shank was bolted to the hinge plate and passed through a stirrup, with the result that the shank did not wear on the upper plate or the hinge plate, and the shank was permitted to flex more freely, is invalid under 35 USC 103, which provides that a patent may not be obtained if the subject matter "would have been obvious at the time the invention was made to a person having ordinary skill in the art."

[\*\*\*LEdHN15]

PATENTS §82

omission from claim --

Headnote:[15A][15B]

Where a feature not specifically claimed in a patent is disclosed in the drawings and specifications, it becomes public property.

[\*\*\*LEdHN16]

PATENTS §123

claims -- construction --

Headnote:[16]

An invention is construed not only in the light of the claims but also with reference to the file wrapper or prosecution history in the Patent Office.

[\*\*\*LEdHN17]

PATENTS §128

narrowed claims -- limitation --

Headnote:[17]

Patent claims as allowed must be read and interpreted with reference to rejected ones and to the state of the prior art; and claims that have been narrowed in order to obtain the issuance of a patent by distinguishing the prior art cannot be sustained to cover that which was previously by limitation eliminated from the patent.

[\*\*\*LEdHN18]

PATENTS §57

closely related art --

Headnote:[18]

Closure devices in such a closely related art as pouring spouts for liquid containers are at the very least pertinent references in determining the patentability of a plastic finger sprayer with a hold-down overcap used as a built-in dispenser for liquid containers, where the claims are limited to an overcap not contacting the container cap and a rib seal for the overcap.

[\*\*\*LEdHN19]

PATENTS §18

PATENTS §21

patentability -- failure of others -- utility --

Headnote:[19]

Legal inferences from the failure of others to solve a problem, the long-felt need in the industry for the device, and its wide commercial success may lend a helping hand to the judiciary in determining patentability and serve to guard against slipping into hindsight and to resist the temptation to read into the prior art the teachings of the invention in issue.

[\*\*\*LEdHN20]

PATENTS §21

patentability -- early unsuccessful experiments --

Headnote:[20]

In determining patentability, unsuccessful attempts to reach a solution become wholly irrelevant with the

383 U.S. 1, \*, 86 S. Ct. 684, \*\*;  
15 L. Ed. 2d 545, \*\*\*LEdHN20; 1966 U.S. LEXIS 2908

appearance of another patent, before the issuance of the patent in litigation, showing the solution claimed by the patent in litigation.

[\*\*\*LEdHN21]

PATENTS §61

patentability -- lack of patent search --

Headnote:[21]

In determining patentability, it is irrelevant that no one apparently chose to avail himself of knowledge stored in the Patent Office and readily available by the simple expedient of conducting a patent search.

[\*\*\*LEdHN22]

PATENTS §19.1

patentability -- obviousness --

Headnote:[22]

The claims of a patent on a plastic finger sprayer with a hold-down overcap fall as not meeting the nonobviousness test of 35 USC 103, since the differences between them and the pertinent prior art would have been obvious to a person reasonably skilled in that art, where the claims are limited to an overcap not contacting the container cap and a rib seal for the overcap, and both the space and the rib seal were disclosed in a prior patent.

## SYLLABUS

In No. 11 petitioners sued for infringement of a patent, consisting of a combination of old mechanical elements, for a device designed to absorb shock from plow shanks in rocky soil to prevent damage to the plow. In 1955 the Fifth Circuit held the patent valid, ruling that a combination is patentable when it produces an "old result in a cheaper and otherwise more advantageous way." Here the Eighth Circuit held that since there was no new result in the combination the patent was invalid. Petitioners in Nos. 37 and 43 filed actions for declaratory judgments declaring invalid respondent's patent relating to a plastic finger sprayer with a "hold-down" cap used as a built-in dispenser for containers with liquids, principally insecticides. By cross-action respondent claimed infringement. The District Court and the Court of Appeals sustained the patent. *Held*: The patents do not

meet the test of the "nonobvious" nature of the "subject matter sought to be patented" to a person having ordinary skill in the pertinent art, set forth in § 103 of the Patent Act of 1952, and are therefore invalid. Pp. 3-37.

(a) In carrying out the constitutional command of Art. I, § 8, that a patent system "promote the Progress of . . . useful Arts," Congress established the two statutory requirements of novelty and utility in the Patent Act of 1793. Pp. 3, 6, 12.

(b) This Court in *Hotchkiss v. Greenwood*, 11 How. 248 (1851), additionally conditioned the issuance of a patent upon the evidence of more ingenuity and skill than that possessed by an ordinary mechanic acquainted with the business. P. 11.

(c) In § 103 of the 1952 Patent Act Congress added the statutory nonobvious subject matter requirement, originally expounded in *Hotchkiss*, which merely codified judicial precedents requiring a comparison of the subject matter sought to be patented and the prior art, tying patentable inventions to advances in the art. Although § 103 places emphasis upon inquiries into obviousness, rather than into "invention," the general level of innovation necessary to sustain patentability remains unchanged under the 1952 Act. Pp. 14-17.

(d) This section permits a more practical test of patentability. The determination of "nonobviousness" is made after establishing the scope and content of prior art, the differences between the prior art and the claims at issue, and the level of ordinary skill in the pertinent art. P. 17.

(e) With respect to each patent involved here the differences between the claims in issue and the pertinent prior art would have been obvious to a person reasonably skilled in that art. Pp. 25-26, 37.

**COUNSEL:** Orville O. Gold argued the cause for petitioners in No. 11. With him on the brief was Claude A. Fishburn. Dennis G. Lyons argued the cause for petitioners in Nos. 37 and 43. With him on the briefs for petitioner in No. 37 were Victor H. Kramer and Francis G. Cole. On the brief for petitioner in No. 43 were George H. Mortimer and Howard A. Crawford.

S. Tom Morris argued the cause for respondents in No. 11. With him on the brief were W. W. Gibson and Thomas E. Scofield. Gordon D. Schmidt argued the

cause for respondent in Nos. 37 and 43. With him on the brief were Carl E. Enggas, Hugh B. Cox and Charles A. Miller.

Briefs of amici curiae in No. 11 were filed by Roger Robb for the American Bar Association; by Stanton T. Lawrence, Jr., for the New York Patent Law Association; by George E. Frost for the Illinois State Bar Association; by J. Vincent Martin, Alfred H. Evans and Russell E. Schlorff for the State Bar of Texas; and by Robert W. Hamilton for the School of Law of the University of Texas.

**JUDGES:** Warren, Harlan, Brennan, Black, Clark, White, Douglas; Fortas took no part in the consideration or decision of these cases; Stewart took no part in the consideration or decision of Nos. 37 and 43

**OPINION BY: CLARK**

## OPINION

[\*3] [\*\*\*548] [\*\*686] MR. JUSTICE CLARK delivered the opinion of the Court.

After a lapse of 15 years, the Court again focuses its attention on the patentability of inventions under the standard of *Art. I, § 8, cl. 8, of the Constitution* and under the conditions prescribed by the laws of the United States. Since our last expression on patent validity, *A. & P. Tea Co. v. Supermarket Corp.*, 340 U.S. 147 (1950), the Congress has for the first time expressly added a third statutory dimension to the two requirements of novelty and utility that had been the sole statutory test since the Patent Act of 1793. This is the test of obviousness, *i. e.*, whether "the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made." § 103 of the Patent Act of 1952, 35 U. S. C. § 103 (1964 ed.).

[\*\*\*LEdHR1A] [1A] [\*\*\*LEdHR2A] [2A]

The questions, involved in each of the companion cases before us, are what effect the 1952 Act [\*\*\*549] had upon traditional statutory and judicial tests of patentability and what definitive tests are now required. We have concluded that the 1952 Act was intended to

codify judicial precedents embracing the principle long ago [\*4] announced by this Court in *Hotchkiss v. Greenwood*, 11 How. 248 (1851), and that, while the clear language of § 103 places emphasis on an inquiry into obviousness, the general [\*\*687] level of innovation necessary to sustain patentability remains the same.

I.

### *The Cases.*

(a). No. 11, *Graham v. John Deere Co.*, an infringement suit by petitioners, presents a conflict between two Circuits over the validity of a single patent on a "Clamp for vibrating Shank Plows." The invention, a combination of old mechanical elements, involves a device designed to absorb shock from plow shanks as they plow through rocky soil and thus to prevent damage to the plow. In 1955, the Fifth Circuit had held the patent valid under its rule that when a combination produces an "old result in a cheaper and otherwise more advantageous way," it is patentable. *Jeoffroy Mfg., Inc. v. Graham*, 219 F.2d 511, cert. denied, 350 U.S. 826. In 1964, the Eighth Circuit held, in the case at bar, that there was no new result in the patented combination and that the patent was, therefore, not valid. 333 F.2d 529, reversing 216 F.Supp. 272. We granted certiorari, 379 U.S. 956. Although we have determined that neither Circuit applied the correct test, we conclude that the patent is invalid under § 103 and, therefore, we affirm the judgment of the Eighth Circuit.

(b). No. 37, *Calmar, Inc. v. Cook Chemical Co.*, and No. 43, *Colgate-Palmolive Co. v. Cook Chemical Co.*, both from the Eighth Circuit, were separate declaratory judgment actions, but were filed contemporaneously. Petitioner in *Calmar* is the manufacturer of a finger-operated sprayer with a "hold-down" cap of the type commonly seen on grocers' shelves inserted in bottles of insecticides and other liquids prior to shipment. Petitioner in *Colgate-Palmolive* is a purchaser of the sprayers [\*5] and uses them in the distribution of its products. Each action sought a declaration of invalidity and noninfringement of a patent on similar sprayers issued to Cook Chemical as assignee of Baxter I. Scoggin, Jr., the inventor. By cross-action, Cook Chemical claimed infringement. The actions were consolidated for trial and the patent was sustained by the District Court. 220 F.Supp. 414. The Court of Appeals affirmed, 336 F.2d 110, and we granted certiorari, 380

*U.S. 949.* We reverse.

Manifestly, the validity of each of these patents turns on the facts. The basic problems, however, are the same in each case and require initially a discussion of the constitutional and statutory provisions covering the patentability of the inventions.

## II.

[\*\*LEdHR3] [3] [\*\*LEdHR4] [4]At the outset it must be remembered that the federal patent power stems from a specific constitutional provision which authorizes the Congress "To promote the Progress of . . . useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries." Art. I, § 8, cl. 8. [\*\*550] <sup>1</sup> The clause is both a grant of power and a limitation. This qualified authority, unlike the power often exercised in the sixteenth and seventeenth centuries by the English Crown, is limited to the promotion of advances in the "useful arts." It was written against the backdrop of the practices -- eventually curtailed by the Statute of Monopolies -- of the Crown in granting monopolies to court favorites in goods or businesses which had long before been enjoyed by the public. See Meinhardt, *Inventions, Patents and Monopoly*, pp. [\*\*688] 30-35 (London, 1946). The Congress in the [\*\*6] exercise of the patent power may not overreach the restraints imposed by the stated constitutional purpose. Nor may it enlarge the patent monopoly without regard to the innovation, advancement or social benefit gained thereby. Moreover, Congress may not authorize the issuance of patents whose effects are to remove existent knowledge from the public domain, or to restrict free access to materials already available. Innovation, advancement, and things which add to the sum of useful knowledge are inherent requisites in a patent system which by constitutional command must "promote the Progress of . . . useful Arts." This is the *standard* expressed in the Constitution and it may not be ignored. And it is in this light that patent validity "requires reference to a standard written into the Constitution." *A. & P. Tea Co. v. Supermarket Corp.*, *supra*, at 154 (concurring opinion).

<sup>1</sup> The provision appears in the Constitution spliced together with the copyright provision, which we omit as not relevant here. See H. R. Rep. No. 1923, 82d Cong., 2d Sess., at 4 (1952); DeWolf, *An Outline of Copyright Law*, p. 15 (Boston, 1925).

[\*\*LEdHR5] [5] [\*\*LEdHR6] [6] [\*\*LEdHR7] [7]Within the limits of the constitutional grant, the Congress may, of course, implement the stated purpose of the Framers by selecting the policy which in its judgment best effectuates the constitutional aim. This is but a corollary to the grant to Congress of any Article I power. *Gibbons v. Ogden*, 9 *Wheat.* 1. Within the scope established by the Constitution, Congress may set out conditions and tests for patentability. *McClurg v. Kingsland*, 1 *How.* 202, 206. It is the duty of the Commissioner of Patents and of the courts in the administration of the patent system to give effect to the constitutional standard by appropriate application, in each case, of the statutory scheme of the Congress.

Congress quickly responded to the bidding of the Constitution by enacting the Patent Act of 1790 during the second session of the First Congress. It created an agency in the Department of State headed by the Secretary of State, the Secretary of the Department of War [\*\*7] and the Attorney General, any two of whom could issue a patent for a period not exceeding 14 years to any petitioner that "hath . . . invented or discovered any useful art, manufacture, . . . or device, or any improvement therein not before known or used" if the board found that "the invention or discovery [was] sufficiently useful and important . . ." 1 Stat. 110. This group, whose members administered the patent system along with their other public duties, was known by its own designation as "Commissioners for the Promotion of Useful Arts."

Thomas Jefferson, who as Secretary of State was a member of the group, was its moving spirit and might well be called the "first administrator of our patent system." See Federico, *Operation of the Patent Act of 1790*, 18 *J. Pat. Off. Soc.* 237, 238 (1936). He was not only an [\*\*551] administrator of the patent system under the 1790 Act, but was also the author of the 1793 Patent Act. In addition, Jefferson was himself an inventor of great note. His unpatented improvements on plows, to mention but one line of his inventions, won acclaim and recognition on both sides of the Atlantic. Because of his active interest and influence in the early development of the patent system, Jefferson's views on the general nature of the limited patent monopoly under the Constitution, as well as his conclusions as to conditions for patentability under the statutory scheme, are worthy of note.

383 U.S. 1, \*7; 86 S. Ct. 684, \*\*688;  
15 L. Ed. 2d 545, \*\*\*551; 1966 U.S. LEXIS 2908

Jefferson, like other Americans, had an instinctive aversion to monopolies. It was a monopoly on tea that sparked the Revolution and Jefferson certainly did not favor an equivalent form of monopoly under the new government. His abhorrence of monopoly extended initially to patents as well. From France, he wrote to Madison (July 1788) urging a *Bill of Rights* provision restricting monopoly, and as against the argument that [\*8] limited [\*\*689] monopoly might serve to incite "ingenuity," he argued forcefully that "the benefit even of limited monopolies is too doubtful to be opposed to that of their general suppression," V Writings of Thomas Jefferson, at 47 (Ford ed., 1895).

His views ripened, however, and in another letter to Madison (Aug. 1789) after the drafting of the *Bill of Rights*, Jefferson stated that he would have been pleased by an express provision in this form:

"Art. 9. Monopolies may be allowed to persons for their own productions in literature & their own inventions in the arts, for a term not exceeding -- years but for no longer term & no other purpose." *Id.*, at 113.

And he later wrote:

"Certainly an inventor ought to be allowed a right to the benefit of his invention for some certain time. . . . Nobody wishes more than I do that ingenuity should receive a liberal encouragement." Letter to Oliver Evans (May 1807), V Writings of Thomas Jefferson, at 75-76 (Washington ed.).

Jefferson's philosophy on the nature and purpose of the patent monopoly is expressed in a letter to Isaac McPherson (Aug. 1813), a portion of which we set out in the margin.<sup>2</sup> He rejected a natural-rights [\*\*\*552] theory in [\*9] intellectual property rights and clearly recognized the social and economic rationale of the patent system. The patent monopoly was not designed to secure to the inventor his natural right in his discoveries. Rather, it was a reward, an inducement, to bring forth new knowledge. The grant of an exclusive right to an invention was the creation of society -- at odds with the inherent free nature of disclosed ideas -- and was not to be freely given. Only inventions and discoveries which furthered human knowledge, and were new and useful, justified the special inducement of a limited private monopoly. Jefferson did not believe in granting patents for small details, obvious improvements, or frivolous devices. His writings evidence his insistence upon a high

level of patentability.

2 "Stable ownership is the gift of social law, and is given late in the progress of society. It would be curious then, if an idea, the fugitive fermentation of an individual brain, could, of natural right, be claimed in exclusive and stable property. If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of every one, and the receiver cannot dispossess himself of it. Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density in any point, and like the air in which we breathe, move, and have our physical being, incapable of confinement or exclusive appropriation. Inventions then cannot, in nature, be a subject of property. Society may give an exclusive right to the profits arising from them, as an encouragement to men to pursue ideas which may produce utility, but this may or may not be done, according to the will and convenience of the society, without claim or complaint from any body." VI Writings of Thomas Jefferson, at 180-181 (Washington ed.).

As a member of the patent board for several years, Jefferson saw clearly the difficulty in "drawing a line between the things which are worth to the public the embarrassment of an exclusive patent, and those which are not." The board on which he served sought to draw such a line and formulated several rules which [\*\*690] are preserved in [\*10] Jefferson's correspondence.<sup>3</sup> Despite the board's efforts, Jefferson saw "with what slow progress a system of general rules could be matured." Because of the "abundance" of cases and the fact that the investigations occupied "more time of the

383 U.S. 1, \*10; 86 S. Ct. 684, \*\*690;  
15 L. Ed. 2d 545, \*\*\*552; 1966 U.S. LEXIS 2908

members of the board than they could spare from higher duties, the whole was turned over to the judiciary, to be matured into a system, under which every one might know when his actions were safe and lawful." Letter to McPherson, *supra*, at 181, 182. Apparently Congress agreed with Jefferson and the board that the courts should develop additional conditions for patentability. Although the Patent Act was amended, revised or codified some 50 times between 1790 and 1950, Congress steered clear of a statutory set of requirements other than the bare novelty and utility tests reformulated in Jefferson's draft of the 1793 Patent Act.

3 "[A] machine of which we are possessed, might be applied by every man to any use of which it is susceptible." Letter to Isaac McPherson, *supra*, at 181.

"[A] change of material should not give title to a patent. As the making a ploughshare of cast rather than of wrought iron; a comb of iron instead of horn or of ivory . . . ." *Ibid*.

"[A] mere change of form should give no right to a patent, as a high-quartered shoe instead of a low one; a round hat instead of a three-square; or a square bucket instead of a round one." *Id.*, at 181-182.

"[A combined use of old implements.] A man has a right to use a saw, an axe, a plane separately; may he not combine their uses on the same piece of wood?" Letter to Oliver Evans (Jan. 1814), VI Writings of Thomas Jefferson, at 298 (Washington ed.).

### III.

The difficulty of formulating conditions for patentability was heightened by the generality of the constitutional grant and the statutes implementing it, together with the underlying policy of the patent system that "the things which are worth to the public the embarrassment [\*11] of an exclusive patent," as Jefferson put it, must outweigh the restrictive effect of the limited patent monopoly. The inherent problem was to develop some means of weeding out those inventions which would not be disclosed or devised but for the inducement of a patent.

[\*\*\*553] This Court formulated a general condition

of patentability in 1851 in *Hotchkiss v. Greenwood*, 11 How. 248. The patent involved a mere substitution of materials -- porcelain or clay for wood or metal in doorknobs -- and the Court condemned it, holding: <sup>4</sup>

"Unless more ingenuity and skill . . . were required . . . than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of every invention. In other words, the improvement is the work of the skilful mechanic, not that of the inventor." At p. 267.

4 In historical retrospect, the specific result in *Hotchkiss* flows directly from an application of one of the rules of the original board of "Commissioners," n. 3, second rule, *supra*.

*Hotchkiss*, by positing the condition that a patentable invention evidence more ingenuity and skill than that possessed by an ordinary mechanic acquainted with the business, merely distinguished between new and useful innovations that were capable of sustaining a patent and those that were not. The *Hotchkiss* test laid the cornerstone of the judicial evolution suggested by Jefferson and left to the courts by Congress. The language in the case, and in those which followed, gave birth to "invention" as a word of legal art signifying patentable inventions. Yet, as this Court has observed, "the truth is the word ['invention'] cannot be defined in such manner as [\*\*691] to afford any substantial aid in determining whether a particular device involves an exercise of the inventive faculty [\*12] or not." *McClain v. Ortmyer*, 141 U.S. 419, 427 (1891); *A. & P. Tea Co. v. Supermarket Corp.*, *supra*, at 151. Its use as a label brought about a large variety of opinions as to its meaning both in the Patent Office, in the courts, and at the bar. The *Hotchkiss* formulation, however, lies not in any label, but in its functional approach to questions of patentability. In practice, *Hotchkiss* has required a comparison between the subject matter of the patent, or patent application, and the background skill of the calling. It has been from this comparison that patentability was in each case determined.

### IV.

*The 1952 Patent Act.*

[\*\*\*LEdHR8] [8]The Act sets out the conditions of patentability in three sections. An analysis of the

structure of these three sections indicates that patentability is dependent upon three explicit conditions: novelty and utility as articulated and defined in § 101 and § 102, and nonobviousness, the new statutory formulation, as set out in § 103. The first two sections, which trace closely the 1874 codification, express the "new and useful" tests which have always existed in the statutory scheme and, for our purposes here, need no clarification.<sup>5</sup> The pivotal [\*13] section around which the present [\*\*\*554] controversy centers is § 103. It provides:

*"§ 103. Conditions for patentability; non-obvious subject matter*

[HN1] "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention [\*\*692] was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made."

<sup>5</sup> *"§ 101. Inventions patentable*

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."

*"§ 102. Conditions for patentability; novelty and loss of right to patent*

"A person shall be entitled to a patent unless

--

"(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

"(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the

application for patent in the United States, or

"(c) he has abandoned the invention, or

"(d) the invention was first patented or caused to be patented by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application filed more than twelve months before the filing of the application in the United States, or

"(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or

"(f) he did not himself invent the subject matter sought to be patented, or

"(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other."

The precursors of these sections are to be found in the Act of February 21, 1793, c. 11, 1 Stat. 318; Act of July 4, 1836, c. 357, 5 Stat. 117; Act of July 8, 1870, c. 230, 16 Stat. 198; Rev. Stat. § 4886 (1874).

[\*14] The section is cast in relatively unambiguous terms. [HN2] Patentability is to depend, in addition to novelty and utility, upon the "non-obvious" nature of the "subject matter sought to be patented" to a person having ordinary skill in the pertinent art.

The first sentence of this section is strongly reminiscent of the language in *Hotchkiss*. Both formulations place emphasis on the pertinent art existing at the time the invention was made and both are implicitly tied to advances in that art. The major distinction is that Congress has emphasized "nonobviousness" as the operative test of the section, rather than the less definite "invention" language of

383 U.S. 1, \*14; 86 S. Ct. 684, \*\*692;  
15 L. Ed. 2d 545, \*\*\*554; 1966 U.S. LEXIS 2908

*Hotchkiss* that Congress thought had led to "a large variety" of expressions in decisions and writings. In the title itself the Congress used the phrase "Conditions for patentability; *non-obvious subject matter*" (italics added), thus focusing upon "non-obviousness" rather than "invention."<sup>6</sup> The Senate and House Reports, S. Rep. No. 1979, 82d Cong., 2d Sess. (1952); H. R. Rep. No. 1923, 82d Cong., 2d Sess. (1952), reflect this emphasis in these terms:

"Section 103, for the first time in our statute, provides a condition which exists in the law and has existed for more than 100 years, but only by reason of decisions of the courts. An invention which has been made, and which is new in the sense that the same thing has not been made before, may still not be patentable if the difference between the new thing and what was known before is not considered sufficiently great to warrant a patent. That has [\*\*\*555] been expressed in a large variety of ways in decisions of [\*15] the courts and in writings. Section 103 states this requirement in the title. It refers to the difference between the subject matter sought to be patented and the prior art, meaning what was known before as described in section 102. If this difference is such that the subject matter as a whole would have been obvious at the time to a person skilled in the art, then the subject matter cannot be patented.

"That provision paraphrases language which has often been used in decisions of the courts, and the section is added to the statute for uniformity and definiteness. This section should have a stabilizing effect and minimize great departures which have appeared in some cases." H. R. Rep., *supra*, at 7; S. Rep., *supra*, at 6.

6 The corresponding provision in the preliminary draft was titled "Conditions for patentability, *lack of invention*" (italics added), Proposed Revision and Amendment of the Patent Laws, Preliminary Draft with Notes, House Committee on the Judiciary (Committee Print, 1950).

[\*\*\*LEdHR9] [9]It is undisputed that this section was, for the first time, a statutory expression of an additional requirement for patentability, originally expressed in *Hotchkiss*. It also seems apparent that Congress intended by the last sentence of § 103 to abolish the test it believed this Court announced in the controversial phrase "flash of creative genius," used in *Cuno Corp. v. Automatic*

*Devices Corp.*, 314 U.S. 84 (1941).<sup>7</sup>

7 The sentence in which the phrase occurs reads: "The new device, however useful it may be, must reveal the flash of creative genius, not merely the skill of the calling." At p. 91. Although some writers and lower courts found in the language connotations as to the frame of mind of the inventors, none were so intended. The opinion approved *Hotchkiss* specifically, and the reference to "flash of creative genius" was but a rhetorical embellishment of language going back to 1833. Cf. "exercise of genius," *Shaw v. Cooper*, 7 Pet. 292; "inventive genius," *Reckendorfer v. Faber*, 92 U.S. 347 (1876); *Concrete Appliances Co. v. Gomery*, 269 U.S. 177; "flash of thought," *Densmore v. Scofield*, 102 U.S. 375 (1880); "intuitive genius," *Potts v. Creager*, 155 U.S. 597 (1895). Rather than establishing a more exacting standard, *Cuno* merely rhetorically restated the requirement that the subject matter sought to be patented must be beyond the skill of the calling. It was the device, not the invention, that had to reveal the "flash of creative genius." See Boyajian, *The Flash of Creative Genius, An Alternative Interpretation*, 25 J. Pat. Off. Soc. 776, 780, 781 (1943); *Pacific Contact Laboratories, Inc. v. Solox Laboratories, Inc.*, 209 F.2d 529, 533; *Brown & Sharpe Mfg. Co. v. Kar Engineering Co.*, 154 F.2d 48, 51-52; *In re Shortell*, 31 C. C. P. A. (Pat.) 1062, 1069, 142 F.2d 292, 295-296.

[\*16] It [\*\*693] is contended, however, by some of the parties and by several of the *amici* that the first sentence of § 103 was intended to sweep away judicial precedents and to lower the level of patentability. Others contend that the Congress intended to codify the essential purpose reflected in existing judicial precedents -- the rejection of insignificant variations and innovations of a commonplace sort -- and also to focus inquiries under § 103 upon nonobviousness, rather than upon "invention," as a means of achieving more stability and predictability in determining patentability and validity.

The Reviser's Note to this section,<sup>8</sup> with apparent reference to *Hotchkiss*, recognizes that judicial [\*\*\*556] requirements as to "lack of patentable novelty [have] been followed since at least as early as 1850." The note indicates that the section was inserted because it "may



383 U.S. 1, \*16; 86 S. Ct. 684, \*\*693;  
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have some stabilizing effect, and also to serve as a basis for the addition at a later time of some criteria which may be worked out." To this same effect are the reports of both Houses, *supra*, which state that the first sentence [\*17] of the section "paraphrases language which has often been used in decisions of the courts, and the section is added to the statute for uniformity and definiteness."

8 "There is no provision corresponding to the first sentence explicitly stated in the present statutes, but the refusal of patents by the Patent Office, and the holding of patents invalid by the courts, on the ground of lack of invention or lack of patentable novelty has been followed since at least as early as 1850. This paragraph is added with the view that an explicit statement in the statute may have some stabilizing effect, and also to serve as a basis for the addition at a later time of some criteria which may be worked out.

"The second sentence states that patentability as to this requirement is not to be negated by the manner in which the invention was made, that is, it is immaterial whether it resulted from long toil and experimentation or from a flash of genius."

[\*\*\*LEdHR1B] [1B] [\*\*\*LEdHR2B] [2B]

We believe that this legislative history, as well as other sources,<sup>9</sup> shows that the revision was not intended by Congress to change the general level of patentable invention. We conclude that the section was intended merely as a codification of judicial precedents embracing the *Hotchkiss* condition, with congressional directions that inquiries into the obviousness of the subject matter sought to be patented are a prerequisite to patentability.

9 See Efforts to Establish a Statutory Standard of Invention, Study No. 7, Senate Subcommittee on Patents, Trademarks, and Copyrights, 85th Cong., 1st Sess. (Committee Print, 1958); Hearings, Subcommittee No. 3, House Committee on the Judiciary, on H. R. 3760, 82d Cong., 1st Sess. (1951).

V.

[\*\*\*LEdHR10] [10] Approached in this light, the § 103 additional condition, when followed realistically, will permit a more practical test of patentability. The emphasis on nonobviousness is one of inquiry, not

[\*\*694] quality, and, as such, comports with the constitutional strictures.

[\*\*\*LEdHR11] [11][HN3] While the ultimate question of patent validity is one of law, *A. & P. Tea Co. v. Supermarket Corp.*, *supra*, at 155, the § 103 condition, which is but one of three conditions, each of which must be satisfied, lends itself to several basic factual inquiries. Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances [\*18] surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy. See Note, Subtests of "Nonobviousness": A Nontechnical Approach to Patent Validity, 112 U. Pa. L. Rev. 1169 (1964).

[\*\*\*LEdHR12] [12] This is not to say, however, that there will not be difficulties in applying the nonobviousness test. What is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context. The difficulties, however, are comparable to those encountered daily by the courts in such frames of reference as negligence and scienter, and should be amenable to a case-by-case development. We believe that strict observance of the requirements laid down here will result in that uniformity and definiteness which Congress called for in the 1952 Act.

[\*\*\*LEdHR13] [13] While we have focused attention on the appropriate standard to be applied by the courts, it must be remembered that the primary responsibility [\*\*\*557] for sifting out unpatentable material lies in the Patent Office. To await litigation is -- for all practical purposes -- to debilitate the patent system. We have observed a notorious difference between the standards applied by the Patent Office and by the courts. While many reasons can be adduced to explain the discrepancy, one may well be the free rein often exercised by Examiners in their use of the concept of "invention." In this connection we note that the Patent Office is confronted with a most difficult task. Almost 100,000 applications for patents are filed each year. Of these, about 50,000 are granted and the backlog now runs

well over 200,000. 1965 Annual Report of the Commissioner of Patents 13-14. This is itself a compelling reason for the Commissioner to strictly adhere to the 1952 Act as interpreted here. This would, we believe, not only expedite disposition but [\*19] bring about a closer concurrence between administrative and judicial precedent.<sup>10</sup>

10 The President has appointed a Commission on the Patent System. Executive Order No. 11215, 30 Fed. Reg. 4661 (April 10, 1965). It is hoped that its studies may develop more efficient administrative procedures and techniques that will further expedite dispositions and at the same time insure the strict application of appropriate tests of patentability.

[HN4] Although we conclude here that the inquiry which the Patent Office and the courts must make as to patentability must be beamed with greater intensity on the requirements of § 103, it bears repeating that we find no change in the general strictness with which the overall test is to be applied. We have been urged to find in § 103 a relaxed standard, supposedly a congressional reaction to the "increased standard" applied by this Court in its decisions over the last 20 or 30 years. The standard has remained invariable in this Court. Technology, however, has advanced -- and with remarkable rapidity in the last 50 years. Moreover, the ambit of applicable art in given fields of science has widened by [\*\*695] disciplines unheard of a half century ago. It is but an evenhanded application to require that those persons granted the benefit of a patent monopoly be charged with an awareness of these changed conditions. The same is true of the less technical, but still useful arts. He who seeks to build a better mousetrap today has a long path to tread before reaching the Patent Office.

## VI.

We now turn to the application of the conditions found necessary for patentability to the cases involved here:

A. *The Patent in Issue in No. 11, Graham v. John Deere Co.*

This patent, No. 2,627,798 (hereinafter called the '798 patent) relates to a spring clamp which permits plow shanks to be pushed upward when they hit obstructions [\*20] in the soil, and then springs the shanks back into

normal position when the obstruction is passed over. The device, which we show diagrammatically in the accompanying sketches (Appendix, Fig. 1), is fixed to the plow frame as a unit. The mechanism around which the controversy centers is basically a hinge. The top half of it, known as the upper plate (marked 1 in the sketches), is a heavy metal piece clamped to the plow frame (2) and is stationary relative to the plow frame. The lower half of the hinge, known as the hinge plate (3), is connected to the rear of the upper plate by a [\*\*\*558] hinge pin (4) and rotates downward with respect to it. The shank (5), which is bolted to the forward end of the hinge plate (at 6), runs beneath the plate and parallel to it for about nine inches, passes through a stirrup (7), and then continues backward for several feet curving down toward the ground. The chisel (8), which does the actual plowing, is attached to the rear end of the shank. As the plow frame is pulled forward, the chisel rips through the soil, thereby plowing it. In the normal position, the hinge plate and the shank are kept tight against the upper plate by a spring (9), which is atop the upper plate. A rod (10) runs through the center of the spring, extending down through holes in both plates and the shank. Its upper end is bolted to the top of the spring while its lower end is hooked against the underside of the shank.

When the chisel hits a rock or other obstruction in the soil, the obstruction forces the chisel and the rear portion of the shank to move upward. The shank is pivoted (at 11) against the rear of the hinge plate and pries open the hinge against the closing tendency of the spring. (See sketch labeled "Open Position," Appendix, Fig. 1.) This closing tendency is caused by the fact that, as the hinge is opened, the connecting rod is pulled downward and the spring is compressed. When the obstruction [\*21] is passed over, the upward force on the chisel disappears and the spring pulls the shank and hinge plate back into their original position. The lower, rear portion of the hinge plate is constructed in the form of a stirrup (7) which brackets the shank, passing around and beneath it. The shank fits loosely into the stirrup (permitting a slight up and down play). The stirrup is designed to prevent the shank from recoiling away from the hinge plate, and thus prevents excessive strain on the shank near its bolted connection. The stirrup also girds the shank, preventing it from fishtailing from side to side.

In practical use, a number of spring-hinge-shank combinations are clamped to a plow frame, forming a set of ground-working chisels capable of withstanding the

shock of rocks and other obstructions in the soil without breaking the shanks.

*Background of the Patent.*

Chisel plows, as they are called, were developed for plowing in areas where the ground is relatively free from rocks or [\*696] stones. Originally, the shanks were rigidly attached to the plow frames. When such plows were used in the rocky, glacial soils of some of the Northern States, they were found to have serious defects. As the chisels hit buried rocks, a vibratory motion was set up and tremendous forces were transmitted to the shank near its connection to the frame. The shanks would break. Graham, one of the petitioners, sought to meet that problem, and in 1950 obtained a patent, U.S. No. 2,493,811 (hereinafter '811), on a spring clamp which solved some of the difficulties. Graham and his companies manufactured and sold the '811 clamps. In 1950, Graham modified the '811 structure and filed for a patent. That patent, the one in issue, was granted in 1953. This suit against competing plow manufacturers resulted from charges by petitioners that several of respondents' devices infringed the '798 patent.

[\*22] *The Prior Art.*

Five prior patents indicating the state of the art were cited by the Patent Office in the prosecution of the '798 application. Four of these [\*\*\*559] patents, 10 other United States patents and two prior-use spring-clamp arrangements not of record in the '798 file wrapper were relied upon by respondents as revealing the prior art. The District Court and the Court of Appeals found that the prior art "as a whole in one form or another contains all of the mechanical elements of the 798 Patent." One of the prior-use clamp devices not before the Patent Examiner -- Glencoe -- was found to have "all of the elements."

We confine our discussion to the prior patent of Graham, '811, and to the Glencoe clamp device, both among the references asserted by respondents. The Graham '811 and '798 patent devices are similar in all elements, save two: (1) the stirrup and the bolted connection of the shank to the hinge plate do not appear in '811; and (2) the position of the shank is reversed, being placed in patent '811 above the hinge plate, sandwiched between it and the upper plate. The shank is held in place by the spring rod which is hooked against the bottom of the hinge plate passing through a slot in the shank. Other differences are of no consequence to our

examination. In practice the '811 patent arrangement permitted the shank to wobble or fishtail because it was not rigidly fixed to the hinge plate; moreover, as the hinge plate was below the shank, the latter caused wear on the upper plate, a member difficult to repair or replace.

Graham's '798 patent application contained 12 claims. All were rejected as not distinguished from the Graham '811 patent. The inverted position of the shank was specifically rejected as was the bolting of the shank to the hinge plate. The Patent Office examiner found these to be "matters of design well within the expected skill of [\*23] the art and devoid of invention." Graham withdrew the original claims and substituted the two new ones which are substantially those in issue here. His contention was that wear was reduced in patent '798 between the shank and the heel or rear of the upper plate. 11 He also emphasized several new features, the relevant one here being that the bolt used to connect the hinge plate and shank maintained the upper face of the shank in continuing [\*\*697] and constant contact with the underface of the hinge plate.

11 In '811, where the shank was above the hinge plate, an upward movement of the chisel forced the shank up against the underside of the rear of the upper plate. The upper plate thus provided the fulcrum about which the hinge was pried open. Because of this, as well as the location of the hinge pin, the shank rubbed against the heel of the upper plate causing wear both to the plate and to the shank. By relocating the hinge pin and by placing the hinge plate between the shank and the upper plate, as in '798, the rubbing was eliminated and the wear point was changed to the hinge plate, a member more easily removed or replaced for repair.

Graham did not urge before the Patent Office the greater "flexing" qualities of the '798 patent arrangement which he so heavily relied on in the courts. The sole element in patent '798 which petitioners argue before us is the interchanging of the shank and hinge plate and the consequences flowing from this arrangement. The contention is that this arrangement -- which petitioners claim is not disclosed in the prior art -- permits the shank to flex under stress for its *entire* length. As we have sketched (see sketch, "Graham '798 Patent" in Appendix, Fig. 2), when the chisel hits an obstruction the resultant force (A) pushes the rear of the shank upward and the

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[\*\*\*560] shank pivots against the rear of the hinge plate at (C). The natural tendency is for that portion of the shank between the pivot point and the bolted connection (*i. e.*, between C and D) to bow downward and away from the hinge plate. The maximum distance [\*24] (B) that the shank moves away from the plate is slight -- for emphasis, greatly exaggerated in the sketches. This is so because of the strength of the shank and the short -- nine inches or so -- length of that portion of the shank between (C) and (D). On the contrary, in patent '811 (see sketch, "Graham '811 Patent" in Appendix, Fig. 2), the pivot point is the upper plate at point (c); and while the tendency for the shank to bow between points (c) and (d) is the same as in '798, the shank is restricted because of the underlying hinge plate and cannot flex as freely. In practical effect, the shank flexes only between points (a) and (c), and not along the entire length of the shank, as in '798. Petitioners say that this difference in flex, though small, effectively absorbs the tremendous forces of the shock of obstructions whereas prior art arrangements failed.

*The Obviousness of the Differences.*

We cannot agree with petitioners. We assume that the prior art does not disclose such an arrangement as petitioners claim in patent '798. Still we do not believe that the argument on which petitioners' contention is bottomed supports the validity of the patent. The tendency of the shank to flex is the same in all cases. If free-flexing, as petitioners now argue, is the crucial difference above the prior art, then it appears evident that the desired result would be obtainable by not boxing the shank within the confines of the hinge.<sup>12</sup> The only other effective place available in the arrangement was to attach it below the hinge plate and run it through a [\*25] stirrup or bracket that would not disturb its flexing qualities. Certainly a person having ordinary skill in the prior art, given the fact that the flex in the shank could be utilized more effectively if allowed to run the entire length of the shank, would immediately see that the thing to do was what Graham did, *i. e.*, invert the shank and the hinge plate.

<sup>12</sup> Even petitioners' expert testified to that effect:

"Q. Given the same length of the forward portion of the clamp . . . you would anticipate that the magnitude of flex [in '798] would be precisely the same or substantially the same as in 811,

wouldn't you?

"A. I would think so."

Petitioners' argument basing validity on the free-flex theory raised for the first time on appeal is reminiscent of *Lincoln Engineering Co. v. Stewart-Warner Corp.*, 303 U.S. 545 (1938), where the Court called such an effort "an afterthought. No such function . . . is hinted at in the specifications of the patent. If this were so vital an element in the functioning of the apparatus it is strange that all mention of it was omitted." At p. 550. No "flexing" argument [\*\*698] was raised in the Patent Office. Indeed, the trial judge specifically found that "flexing is not a claim of the patent in suit . . ." and would not permit interrogation as to flexing in the accused devices. Moreover, the clear testimony of petitioners' experts shows that the flexing advantages flowing from the '798 arrangement are not, in fact, a significant feature in the patent.<sup>13</sup>

13 "Q. . . . Do you regard the small degree of flex in the forward end of the shank that lies between the pivot point and the point of spring attachment to be of any significance or any importance to the functioning of a device such as 798? A. Unless you are approaching the elastic limit, I think this flexing will reduce the maximum stress at the point of pivot there, where the maximum stress does occur. I think it will reduce that. I don't know how much.

"Q. Do you think it is a substantial factor, a factor of importance in the functioning of the structure? A. Not a great factor, no."

The same expert previously testified similarly in *Jeoffroy Mfg., Inc. v. Graham*, 219 F.2d 511.

[\*\*\*LEdHR14] [14]We [\*\*\*561] find no nonobvious facets in the '798 arrangement. The wear and repair claims were sufficient to overcome [\*26] the patent examiner's original conclusions as to the validity of the patent. However, some of the prior art, notably Glencoe, was not before him. There the hinge plate is below the shank but, as the courts below found, all of the elements in the '798 patent are present in the Glencoe structure. Furthermore, even though the position of the shank and hinge plate appears reversed in Glencoe, the mechanical operation is identical. The shank there pivots about the underside of the stirrup, which in Glencoe is

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above the shank. In other words, the stirrup in Glencoe serves exactly the same function as the heel of the hinge plate in '798. The mere shifting of the wear point to the heel of the '798 hinge plate from the stirrup of Glencoe -- itself a part of the hinge plate -- presents no operative mechanical distinctions, much less nonobvious differences.

B. *The Patent in Issue in No. 37, Calmar, Inc. v. Cook Chemical Co., and in No. 43, Colgate-Palmolive Co. v. Cook Chemical Co.*

The single patent <sup>14</sup> involved in these cases relates to a plastic finger sprayer with a "hold-down" lid used as a built-in dispenser for containers or bottles packaging liquid products, principally household insecticides. Only the first two of the four claims in the patent are involved here and we, therefore, limit our discussion to them. We do not set out those claims here since they are printed in 220 F.Supp., at 417-418.

14 The patent is U.S. No. 2,870,943 issued in 1959 to Cook Chemical Co. as assignee of Baxter I. Scoggin, Jr., the inventor. In No. 37, Calmar is the manufacturer of an alleged infringing device, and, in No. 43, Colgate is a customer of Calmar and user of its device.

In essence the device here combines a finger-operated pump sprayer, mounted in a container or bottle by means of a container cap, with a plastic overcap which screws over the top of and depresses the sprayer (see Appendix, [\*27] Fig. 3). The pump sprayer passes through the container cap and extends down into the liquid in the container; the overcap fits over the pump sprayer and screws down on the outside of a collar mounting or retainer which is molded around the body of the sprayer. When the overcap is screwed down on this collar mounting a seal is formed by the engagement of a circular ridge or rib located above the threads on the collar mounting with a mating shoulder located inside the overcap above its threads. <sup>15</sup> The overcap, as it is screwed down, depresses the pump plunger rendering the pump inoperable and when the seal is effected, [\*\*699] any liquid which might seep into the overcap through or around the pump is prevented from leaking out of the overcap. [\*\*\*562] The overcap serves also to protect the sprayer head and prevent damage to it during shipment or merchandising. When the overcap is in place it does not reach the cap of the container or bottle and in no way engages it since a slight space is left between those two

pieces.

15 Our discussion here relates to the overcap seal. The container itself is sealed in the customary way through the use of a container gasket located between the container and the container cap.

The device, called a shipper-sprayer in the industry, is sold as an integrated unit with the overcap in place enabling the insecticide manufacturer to install it on the container or bottle of liquid in a single operation in an automated bottling process. The ultimate consumer simply unscrews and discards the overcap, the pump plunger springs up and the sprayer is ready for use.

#### *The Background of the Patent.*

For many years manufacturers engaged in the insecticide business had faced a serious problem in developing sprayers that could be integrated with the containers or bottles in which the insecticides were marketed. Originally, insecticides were applied through the use of tin [\*28] sprayers, not supplied by the manufacturer. In 1947, Cook Chemical, an insecticide manufacturer, began to furnish its customers with plastic pump dispensers purchased from Calmar. The dispenser was an unpatented finger-operated device mounted in a perforated cardboard holder and hung over the neck of the bottle or container. It was necessary for the ultimate consumer to remove the cap of the container and insert and attach the sprayer to the latter for use.

Hanging the sprayer on the side of the container or bottle was both expensive and troublesome. Packaging for shipment had to be a hand operation, and breakage and pilferage as well as the loss of the sprayer during shipment and retail display often occurred. Cook Chemical urged Calmar to develop an integrated sprayer that could be mounted directly in a container or bottle during the automated filling process and that would not leak during shipment or retail handling. Calmar did develop some such devices but for various reasons they were not completely successful. The situation was aggravated in 1954 by the entry of Colgate-Palmolive into the insecticide trade with its product marketed in aerosol spray cans. These containers, which used compressed gas as a propellant to dispense the liquid, did not require pump sprayers.

During the same year Calmar was acquired by the

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Drackett Company. Cook Chemical became apprehensive of its source of supply for pump sprayers and decided to manufacture its own through a subsidiary, Bakan Plastics, Inc. Initially, it copied its design from the unpatented Calmar sprayer, but an officer of Cook Chemical, Scoggin, was assigned to develop a more efficient device. By 1956 Scoggin had perfected the shipper-sprayer in suit and a patent was granted in 1959 to Cook Chemical as his assignee. In the interim Cook Chemical began to use Scoggin's device and also marketed [\*29] it to the trade. The device was well received and soon became widely used.

In the meanwhile, Calmar employed two engineers, Corsette and Coopridner, to perfect a shipper-sprayer and by 1958 it began to market its SS-40, a device very much similar to Scoggin's. When the Scoggin patent issued, Cook Chemical charged Calmar's SS-40 with infringement and this suit followed.

*The Opinions of the District Court and the Court of Appeals.*

At the outset it is well to point up [\*\*\*563] that the parties have always disagreed as to the scope and definition of the invention claimed in the patent in suit. Cook Chemical contends that the invention encompasses a unique combination of admittedly old elements and that patentability is found in the result produced. Its expert testified that the invention was "the first commercially successful, inexpensive integrated shipping closure pump unit which permitted automated assembly with a container of household [\*\*700] insecticide or similar liquids to produce a practical, ready-to-use package which could be shipped without external leakage and which was so organized that the pump unit with its hold-down cap could be itself assembled and sealed and then later assembled and sealed on the container without breaking the first seal." Cook Chemical stresses the long-felt need in the industry for such a device; the inability of others to produce it; and its commercial success -- all of which, contends Cook, evidences the nonobvious nature of the device at the time it was developed. On the other hand, Calmar says that the differences between Scoggin's shipper-sprayer and the prior art relate only to the design of the overcap and that the differences are so inconsequential that the device as a whole would have been obvious at the time of its invention to a person having ordinary skill in the art.

[\*30] Both courts accepted Cook Chemical's

contentions. While the exact basis of the District Court's holding is uncertain, the court did find the subject matter of the patent new, useful and nonobvious. It concluded that Scoggin "had produced a sealed and protected sprayer unit which the manufacturer need only screw onto the top of its container in much the same fashion as a simple metal cap." 220 F.Supp., at 418. Its decision seems to be bottomed on the finding that the Scoggin sprayer solved the long-standing problem that had confronted the industry.<sup>16</sup> The Court of Appeals also found validity in the "novel 'marriage' of the sprayer with the insecticide container" which took years in discovery and in "the immediate commercial success" which it enjoyed. While finding that the individual elements of the invention were "not novel per se" the court found "nothing in the prior art suggesting Scoggin's unique combination of these old features . . . as would solve the . . . problems which for years beset the insecticide industry." It concluded that "the . . . [device] meets the exacting standard required for a combination of old elements to rise to the level of patentable invention by fulfilling the long-felt need with an economical, efficient, utilitarian apparatus which achieved novel results and immediate commercial success." 336 F.2d, at 114.

16 "By the same reasoning, may it not also be said that if [the device] solved a long-sought need, it was likewise novel? If it meets the requirements of being new, novel and useful, it was the subject of invention, although it may have been a short step, nevertheless it was the last step that ended the journey. The last step is the one that wins and he who takes it when others could not, is entitled to patent protection." 220 F.Supp., at 421.

*The Prior Art.*

Only two of the five prior art patents cited by the Patent Office Examiner in the prosecution of Scoggin's application are necessary to our discussion, *i. e.*, Lohse [\*31] U.S. Patent No. 2,119,884 (1938) and Mellon U.S. Patent No. 2,586,687 (1952). Others are cited by Calmar that were not before the Examiner, but of [\*\*\*564] these our purposes require discussion of only the Livingstone U.S. Patent No. 2,715,480 (1953). Simplified drawings of each of these patents are reproduced in the Appendix, Figs. 4-6, for comparison and description.

The Lohse patent (Fig. 4) is a shipper-sprayer

383 U.S. 1, \*31; 86 S. Ct. 684, \*\*700;  
15 L. Ed. 2d 545, \*\*\*564; 1966 U.S. LEXIS 2908

designed to perform the same function as Scoggin's device. The differences, recognized by the District Court, are found in the overcap seal which in Lohse is formed by the skirt of the overcap engaging a washer or gasket which rests upon the upper surface of the container cap. The court emphasized that in Lohse "there are no seals above the threads and below the sprayer head." 220 F.Supp., at 419.

The Mellon patent (Fig. 5), however, discloses the idea of effecting a seal above the threads of the overcap. Mellon's device, likewise a shipper-sprayer, differs from Scoggin's in that its overcap [\*\*701] screws directly on the container, and a gasket, rather than a rib, is used to effect the seal.

[\*\*\*LEdHR15A] [15A] Finally, Livingstone (Fig. 6) shows a seal above the threads accomplished without the use of a gasket or washer.<sup>17</sup> Although Livingstone's arrangement was designed to cover and protect pouring spouts, his sealing feature is strikingly similar to Scoggin's. Livingstone uses a tongue and groove technique in which the tongue, located on the upper surface of the collar, fits into a groove on the inside of the overcap. Scoggin employed the rib and shoulder seal in the identical position and with less efficiency because the Livingstone technique is inherently a more stable structure, forming an interlock that withstands distortion of the overcap when subjected to rough handling. Indeed, Cook Chemical has now incorporated the Livingstone closure into its own shipper-sprayers as had Calmar in its SS-40.

[\*\*\*LEdHR15B] [15B]

17 While the sealing feature was not specifically claimed in the Livingstone patent, it was disclosed in the drawings and specifications. Under long-settled law the feature became public property. *Miller v. Brass Co.*, 104 U.S. 350, 352 (1882).

#### *The Invalidity of the Patent.*

Let us first return to the fundamental disagreement between the parties. Cook Chemical, as we noted at the outset, urges that the invention must be viewed as the overall combination, or -- putting it in the language of the statute -- that we must consider the subject matter sought to be patented taken as a whole. With this position, taken in the abstract, there is, of course, no quibble. But the

history of the prosecution of the Scoggin application in the Patent Office reveals a substantial divergence in respondent's present position.

As originally submitted, the Scoggin application contained 15 claims which in very broad terms claimed the entire combination of spray pump and overcap. No mention of, or claim for, the sealing features was made. All 15 claims were rejected by the Examiner because (1) the applicant was vague and indefinite as to what the invention was, and (2) the claims were met by Lohse. Scoggin canceled these claims and submitted new ones. Upon a further series of rejections and new submissions, the Patent Office Examiner, after an office interview, at last relented. It is crystal clear that after the first rejection, Scoggin relied entirely upon the sealing arrangement as the exclusive patentable difference in his combination. It is likewise clear that it was [\*\*\*565] on that feature that the Examiner allowed the claims. In fact, in a letter accompanying the final submission of claims, Scoggin, through his attorney, stated that "agreement was reached between the Honorable Examiner and applicant's attorney relative to *limitations* which must be in the claims in [\*33] order to define novelty over the previously applied disclosure of Lohse when considered in view of the newly cited patents of Mellon and Darley, Jr." (*Italics added.*)

Moreover, those limitations were specifically spelled out as (1) the use of a rib seal and (2) an overcap whose lower edge did not contact the container cap. Mellon was distinguished, as was the Darley patent, *infra*, n. 18, on the basis that although it disclosed a hold-down cap with a seal located above the threads, it did not disclose a rib seal disposed in such position as to cause the lower peripheral edge of the overcap "to be maintained out of contacting relationship with [the container] cap . . . when . . . [the overcap] was screwed [on] tightly . . . ." Scoggin maintained that the "obvious modification" of Lohse in view of Mellon would be merely to place the Lohse gasket above the threads with the lower edge of the overcap remaining in tight contact with the container cap or neck of the container itself. In other words, the [\*\*702] Scoggin invention was limited to the use of a rib -- rather than a washer or gasket -- and the existence of a slight space between the overcap and the container cap.

[\*\*\*LEdHR16] [16] [\*\*\*LEdHR17] [17] It is, of course, well settled that [HN5] an invention is construed not only in the light of the claims, but also with reference to the



file wrapper or prosecution history in the Patent Office. *Hogg v. Emerson*, 11 How. 587 (1850); *Crawford v. Heysinger*, 123 U.S. 589 (1887). Claims as allowed must be read and interpreted with reference to rejected ones and to the state of the prior art; and claims that have been narrowed in order to obtain the issuance of a patent by distinguishing the prior art cannot be sustained to cover that which was previously by limitation eliminated from the patent. *Powers-Kennedy Co. v. Concrete Co.*, 282 U.S. 175, 185-186 (1930); *Schriber Co. v. Cleveland Trust Co.*, 311 U.S. 211, 220-221 (1940).

[\*34] Here, the patentee obtained his patent only by accepting the limitations imposed by the Examiner. The claims were carefully drafted to reflect these limitations and Cook Chemical is not now free to assert a broader view of Scoggin's invention. The subject matter as a whole reduces, then, to the distinguishing features clearly incorporated into the claims. We now turn to those features.

As to the space between the skirt of the overcap and the container cap, the District Court found:

"Certainly without a space so described, there could be no inner seal within the cap, but such a space is not new or novel, but it is necessary to the formation of the seal within the hold-down cap.

*"To me this language is descriptive of an element of the patent but not a part of the invention. It is too simple, really, to require much discussion. In this device the hold-down cap was intended to perform two functions -- to hold down the sprayer head and to form a solid tight seal between the shoulder and the collar below. In assembling the element it is necessary to provide [\*\*\*566] this space in order to form the seal." 220 F.Supp., at 420. (Italics added.)*

The court correctly viewed the significance of that feature. We are at a loss to explain the Examiner's allowance on the basis of such a distinction. Scoggin was able to convince the Examiner that Mellon's cap contacted the bottle neck while his did not. Although the drawings included in the Mellon application show that the cap might touch the neck of the bottle when fully screwed down, there is nothing -- absolutely nothing -- which indicates that the cap was designed at any time to *engage* the bottle neck. It is palpably evident that Mellon embodies a seal formed by a gasket compressed [\*35] between the cap and the bottle neck. It follows that the

cap in Mellon will not seal if it does not bear down on the gasket and this would be impractical, if not impossible, under the construction urged by Scoggin before the Examiner. Moreover, the space so strongly asserted by Cook Chemical appears quite plainly on the Livingstone device, a reference not cited by the Examiner.

[\*\*\*LEdHR18] [18]The substitution of a rib built into a collar likewise presents no patentable difference above the prior art. It was fully disclosed and dedicated to the public in the Livingstone patent. Cook Chemical argues, however, that Livingstone is not in the *pertinent* prior art because it relates to liquid containers having pouring spouts rather than pump sprayers. Apart from the fact that respondent made no such objection to similar [\*\*703] references cited by the Examiner, <sup>18</sup> so restricted a view of the applicable prior art is not justified. The problems confronting Scoggin and the insecticide industry were not insecticide problems; they were mechanical closure problems. Closure devices in such a closely related art as pouring spouts for liquid containers are at the very least pertinent references. See, II Walker on Patents § 260 (Deller ed. 1937).

18 In addition to Livingstone and Mellon, the Examiner cited Slade, *U.S. Patent No. 2,844,290* (hold-down cap for detergent cans having a pouring spout); Nilson, *U.S. Patent No. 2,118,222* (combined cap and spout for liquid dispensing containers); Darley, Jr., *U.S. Patent No. 1,447,712* (containers for toothpaste, cold creams and other semi-liquid substances).

[\*\*\*LEdHR19] [19]Cook Chemical insists, however, that the development of a workable shipper-sprayer eluded Calmar, who had long and unsuccessfully sought to solve the problem. And, further, that the long-felt need in the industry for a device such as Scoggin's together with its wide commercial success supports its patentability. These legal inferences [\*36] or subtests do focus attention on economic and motivational rather than technical issues and are, therefore, more susceptible of judicial treatment than are the highly technical facts often present in patent litigation. See Judge Learned Hand in *Reiner v. I. Leon Co.*, 285 F.2d 501, 504 (1960). See also Note, Subtests of "Nonobviousness": A Nontechnical Approach to Patent Validity, 112 U. Pa. L. Rev. 1169 (1964). Such inquiries may lend a helping hand to the judiciary which, as Mr. Justice Frankfurter observed, is most ill-fitted to



383 U.S. 1, \*36; 86 S. Ct. 684, \*\*703;  
15 L. Ed. 2d 545, \*\*\*LEdHR19; 1966 U.S. LEXIS 2908

discharge the technological duties cast upon it by patent legislation. *Marconi Wireless Co. v. United States*, 320 U.S. 1, 60 (1943). They may also serve to "guard against slipping into use of hindsight," *Monroe Auto Equipment Co. v. Heckethorn Mfg. & Sup. Co.*, 332 F.2d 406, 412 (1964), and to resist the temptation to read into the prior art the teachings of the invention in issue.

[\*\*\*567] [\*\*\*LEdHR20] [20] [\*\*\*LEdHR21] [21] However, these factors do not, in the circumstances of this case, tip the scales of patentability. The Scoggin invention, as limited by the Patent Office and accepted by Scoggin, rests upon exceedingly small and quite nontechnical mechanical differences in a device which was old in the art. At the latest, those differences were rendered apparent in 1953 by the appearance of the Livingstone patent, and unsuccessful attempts to reach a solution to the problems confronting Scoggin made before that time became wholly irrelevant. It is also irrelevant that no one apparently chose to avail himself of knowledge stored in the Patent Office and readily available by the simple expedient of conducting a patent search -- a prudent and nowadays common preliminary to well organized research. *Mast, Foos & Co. v. Stover Mfg. Co.*, 177 U.S. 485 (1900). To us, the limited claims

of the Scoggin patent are clearly evident from the prior art as it stood at the time of the invention.

[\*37] [\*\*\*LEdHR22] [22] We conclude that the claims in issue in the Scoggin patent must fall as not meeting the test of § 103, since the differences between them and the pertinent prior art would have been obvious to a person reasonably skilled in that art.

The judgment of the Court of Appeals in No. 11 is affirmed. The judgment of the Court of Appeals in Nos. 37 and 43 is reversed and the cases remanded to the District Court for disposition not inconsistent with this opinion.

*It is so ordered.*

MR. JUSTICE STEWART took no part in the consideration or decision of Nos. 37 and 43.

MR. JUSTICE FORTAS took no part in the consideration or decision of these cases.

[SEE ILLUSTRATION IN ORIGINAL.]





Source: USPQ, 2d Series (1986 - Present) > U.S. Court of Appeals, Federal Circuit > In re Dillon, 16 USPQ2d 1897 (Fed. Cir. 1990)

**16 USPQ2d 1897**  
**In re Dillon**  
**U.S. Court of Appeals Federal Circuit**

No. 88-1245

Decided November 9, 1990

919 F2d 688

## Headnotes

### PATENTS

**[1] Patentability/Validity - Obviousness - Relevant prior art - Particular inventions (► 115.0903.03)**

Patent and Trademark Office properly found that applicant's claims for hydrocarbon fuel containing tetra-orthoesters that reduce particulate emissions upon combustion are prima facie obvious over prior patents for hydrocarbon fuels containing tri-orthoesters for purpose of "dewatering" fuels and preventing phase separation of fuels and alcohol, and in view of secondary references using tri- and tetra-orthoesters as water scavengers in non-hydrocarbon hydraulic fluids, even though no reference discloses use applicant discovered, since applicant's composition claims are not limited to soot reduction use and are not physically or structurally distinguishable from those of prior art patents except as to orthoester component, and since PTO has shown sufficiently close relationship between tri- and tetra-orthoesters in fuel oil art to create expectation that hydrocarbon fuels containing tetra-esters would have properties sufficiently similar to those of fuels containing tri-esters to provide motivation to make tetra-ester fuel compositions.

**[2] Patentability/Validity - Obviousness - Relevant prior art - In general (► 115.0903.01)**

Prima facie case for obviousness of chemical composition is established if there is structural similarity between claimed and prior art subject matter, proved by combining references or otherwise, and if prior art gives reason or motivation to make claimed composition; burden and opportunity then falls on applicant to rebut prima facie case through showing that claimed composition possesses unexpectedly improved properties or properties lacking in prior art, that prior art is so deficient that there is no motivation to make changes that otherwise appear obvious, or by any other pertinent argument or presentation of evidence.

**[3] Patentability/Validity - Obviousness - Relevant prior art - In general (► 115.0903.01)**

**Patentability/Validity - Obviousness - References and claims as whole (► 115.0904)**

All evidence of properties of claimed chemical composition and prior art must be considered in determining ultimate question of obviousness, but discovery that claimed composition possesses property not disclosed for prior art does not alone defeat prima facie case, and it is not necessary, in order to establish prima facie case, to show both structural similarity between claimed and prior art compound and suggestion in, or expectation from, prior art that claimed compound will have same or similar utility as one newly discovered by applicant; to extent that *In re Wright*, 6 USPQ2d 1959, conflicts with such holding, it is *overruled*.

**[4] Patentability/Validity - Obviousness - Relevant prior art - Particular inventions (► 115.0903.03)**

Claims for hydrocarbon fuel containing tetra-orthoesters were properly rejected as obvious over prior art patents for fuels containing tri-orthoesters, even though references do not relate to problem of reducing particulate emissions which was addressed by applicant, since application claims are not limited to that use and merely recite compositions analogous to those in prior patents, and since applicant has made no showing to overcome prima facie presumption of similar properties for those analogous compositions; mention, in applicant's method claims, that amount of orthoester must be sufficient to reduce particulate emissions is not distinguishing limitation of such claims, since specified amount is not different from prior art or critical to use of claimed composition.

**[5] Patentability/Validity - Obviousness - Relevant prior art - Particular inventions (► 115.0903.03)**

Patent describing use of tri- and tetra-orthoesters as water scavengers in hydraulic fluid is not outside field

of prior art relevant to determining obviousness of applicant's claims for hydrocarbon fuel composition containing tetra-orthoesters for purpose of reducing particulate emissions, since person concerned with fuel oils is chargeable with knowledge of prior patents disclosing use of tri-orthoesters in fuel for dewatering purposes and therefore also chargeable with knowledge of references to tri-orthoesters as dewatering agents in other fluids, and since statement in prior patent of equivalency between tri- and tetra-orthoesters is not challenged.

**[6] Patentability/Validity - Obviousness - References and claims as whole (► 115.0904)**

Board of Patent Appeals and Interferences, in upholding rejection of applicant's claims for hydrocarbon fuel composition containing tetra-orthoesters for reduction of particulate emissions as obvious over patents for hydrocarbon fuels containing tri-orthoesters for purposes of water scavenging and prevention of phase separation between fuels and alcohol, did not fail to consider unexpected results produced by invention or fail to consider claimed invention as whole, since presumption of obviousness created by showing that prior art compositions suggested claimed compositions was not overcome through showing that such compositions possessed properties not possessed by prior art, that prior art compositions and use were so lacking in significance that there was no motivation for others to make obvious variants, or that claimed compositions are more important than prior art, and since board therefore properly concluded that applicant had not shown unexpected results for claimed compositions.

**[7] Patentability/Validity - Obviousness - Relevant prior art - Particular inventions (► 115.0903.03)**

**Patentability/Validity - Obviousness - Evidence of (► 115.0906)**

Examiner's reference, in rejecting as obvious applicant's claims for fuel compositions containing tetra-orthoesters for purpose of reducing particulate emissions, to data in application showing that prior art hydrocarbon fuel compositions containing tri-orthoesters demonstrated similar emissions-reducing activity, did not violate rule that claims should not be rejected solely on applicant's own showing of equivalency, since references to comparative data in patent application were not employed as evidence of equivalence between tri- and tetra-orthoesters, but were made merely to show that applicant could not demonstrate superiority of claimed tetra-orthoester compositions.

**[8] Patentability/Validity - Obviousness - Relevant prior art - Particular inventions (► 115.0903.03)**

Claims for hydrocarbon fuel compositions containing tetra-orthoesters to reduce particulate emissions were properly rejected for obviousness, since claims in question differ from other properly rejected claims only by limiting amounts of alcohol and added orthoester in fuel to less than 1 percent and no more than 5 or 9 volume percent respectively, since no objective evidence was presented to establish different or unexpected result from limiting amount of alcohol in such manner, since primary references relied on for obviousness finding also contain less than 1 percent alcohol, since limits on amount of orthoester do not result in amount of ester different from that used for "dewatering" fuels in primary references, and since orthoester limitations have not been shown to be critical.

**[9] Practice and procedure in Patent and Trademark Office - Board of Patent Appeals and Interferences - Rules and rules practice (► 110.1105)**

**Patentability/Validity - Obviousness - In general (► 115.0901)**

Decision of Board of Patent Appeals and Interferences upholding obviousness rejection of applicant's method claims for hydrocarbon fuel composition is *affirmed*, since board properly rejected applicant's composition claims and applicant did not argue separate patentability of method claims to board.

**Case History and Disposition**

Appeal from the U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences.

Patent application of Diane M. Dillon, no. 06/671,570, entitled "Hydrocarbon Fuel Composition." From decision of Board of Patent Appeals and Interferences upholding rejection of claims 2-14, 16-22, and 24-37, applicant appealed, and rejection was *reversed* in panel decision with Archer, J., dissenting (13 USPQ2d 1337). Patent and Trademark Office then petitioned for rehearing and suggested rehearing in banc. Rehearing in banc was ordered, judgment of panel was vacated, and accompanying opinion was *withdrawn*. On rehearing in banc, rejection of all claims is *affirmed*, with Archer, Markey, and Michel, circuit judges, joining in part; Cowen, senior circuit judge, and Newman and Mayer, circuit judges, dissent in separate opinion.

**Attorneys**

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William S. Thompson, Arlington, Va. (Donald R. Dunner, Herbert H. Mintz, and Thomas L. Irving, of Finnegan, Henderson, Farabow, Garrett & Dunner, Washington, D.C., with him on brief; Harold C. Wegner, of Wegner & Bretschneider, Washington, of counsel), for amicus curiae American Intellectual Property Law Association.

Allen S. Melser and Linda J. Shapiro, of Mason, Fenwick & Lawrence, Washington, D.C., for amicus curiae Chemical Manufacturers Association.

Irving Kayton, Washington, D.C. for amicus curiae Professor Irving Kayton.

Robert A. Chittum, Rochester, N.Y., for amicus curiae Rochester Patent Law Association.

## Judge

Before Nies, chief judge, Cowen, senior circuit judge, and Rich, Markey, Newman, Archer, Mayer, Michel, Plager, Lourie, Clevenger, and Rader, circuit judges.

## Opinion Text

### Opinion By:

Lourie, J.

Diane M. Dillon, assignor to Union Oil Company of California, appeals the November 25, 1987, decision of the Board of Patent Appeals and Interferences (Board) of the United States Patent and Trademark Office (PTO), Appeal No. 87-0944, rejecting claims 2-14, 16-22, and 24-37, all the remaining claims of patent application Serial No. 671,570 entitled "Hydrocarbon Fuel Composition." We affirm the rejection of all of the claims.<sup>1</sup>

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<sup>1</sup> A panel of this court heard this appeal and *reversed* the Board on December 29, 1989. 892 F.2d 1554, 13 USPQ2d 1337. The PTO petitioned for rehearing and suggested rehearing in banc on February 12, 1990. Rehearing in banc was ordered on May 21, 1990, and the judgment which was entered on December 29, 1989, was vacated, the accompanying opinion being *withdrawn*.

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## The Invention

Dillon's patent application describes and claims her discovery that the inclusion of certain tetra-orthoester compounds in hydrocarbon fuel compositions will reduce the emission of solid particulates ( *i.e.*, soot) during combustion of the fuel. In this appeal Dillon asserts the patentability of claims to hydrocarbon fuel compositions containing these tetra-orthoesters, and to the method of reducing particulate emissions during combustion by combining these esters with the fuel before combustion.

Claim 2 is the broadest composition claim:

2. A composition comprising: a hydrocarbon fuel; and a sufficient amount of at least one orthoester so as to reduce the particulate emissions from the combustion of the hydrocarbon fuel, wherein the orthoester is of the formula:

wherein R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, and R<sub>8</sub> are the same or different monovalent organic radical comprising to about 20 carbon atoms.

The broadest method claim is claim 24:

24. A method of reducing the particulate emissions from the combustion of a hydrocarbon fuel comprising combusting a mixture of the hydrocarbon fuel and a sufficient amount of at least one orthoester so as to reduce the particulate emissions, wherein the orthoester is of the formula:

wherein R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, and R<sub>8</sub> are the same or different monovalent organic radical comprising 1 to about 20 carbon atoms.

The other claims contain additional limitations and thus are narrower in scope.

The tetra-orthoesters are a known class of chemical compounds. It is undisputed that their combination with hydrocarbon fuel, for any purpose, is not shown in the prior art, and that their use to reduce particulate emissions from combustion of hydrocarbon fuel is not shown or suggested in the prior art.

## The Rejection

The Board held all of the claims to be unpatentable on the ground of obviousness, 35 U.S.C. §103, in view of certain primary and secondary references. As primary references the Board relied on two Sweeney U.S. patents, 4,390,417 ('417) and 4,395,267 ('267). Sweeney '417 describes hydrocarbon fuel compositions containing specified chemical compounds, *viz.*, ketals, acetals,

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and tri-orthoesters,<sup>2</sup> used for "dewatering" the fuels, particularly diesel oil. Sweeney '267 describes three-component compositions of hydrocarbon fuels heavier than gasoline, immiscible alcohols, and tri-orthoesters, wherein the tri-orthoesters serve as cosolvents to prevent phase separation between fuel and alcohol. The Board explicitly found that the Sweeney patents do not teach the use of the tetra-orthoesters recited in appellant's claims.

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<sup>2</sup> Tri-orthoesters have three -OR groups bonded to a central carbon atom, and the fourth carbon bond is to hydrogen or a hydrocarbon group (-R); they are represented as C(R)(OR)<sub>3</sub>. Tetra-orthoesters have four -OR groups bonded to a central carbon atom, and are represented as C(OR)<sub>4</sub>; see Dillon's claims, *supra*.

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The Board cited Elliott U.S. Patent 3,903,006 and certain other patents, including Howk U.S. Patent 2,840,613, as secondary references. Elliott describes tri-orthoesters and tetra-orthoesters for use as water scavengers in hydraulic (non-hydrocarbon) fluids. The Board stated that the Elliott reference shows equivalence between tetra-orthoesters and tri-orthosters, and that "it is clear from the combined teachings of these references ... that [Dillon's tetra-orthoesters] would operate to remove water from non-aqueous liquids by the same mechanism as the orthoesters of Sweeney."

The Board stated that there was a "reasonable expectation" that the tri- and tetra-orthoester fuel compositions would have similar properties, based on "close structural and chemical similarity" between the tri- and tetra-orthoesters and the fact that both the prior art and Dillon use these compounds as "fuel additives." The Commissioner argues on appeal that the claimed compositions and method "would have been *prima facie* obvious from combined teachings of the references." On this reasoning, the Board held that unless Dillon showed some unexpected advantage or superiority of her claimed tetra-orthoester fuel compositions as compared with tri-orthoester fuel compositions, Dillon's new compositions as well as her claimed method of reducing particulate emissions are unpatentable for obviousness. It found that no such showing was made.

## The Issue

The issue before this court is whether the Board erred in rejecting as obvious under 35 U.S.C. §103 claims to Dillon's new compositions and to the new method of reducing particulate emissions, when the additives in the new compositions are structurally similar to additives in known compositions, having a different use, but the new method of reducing particulate emissions is neither taught nor suggested by the prior art.

## The Broad Composition Claims

Claim 2, the broadest composition claim, comprises a hydrocarbon fuel and an amount of tetra-orthoester sufficient to reduce the particulate emissions from the combustion of the hydrocarbon fuel. The other composition claims contain various limitations including a minimum amount of emission reduction to be achieved (claim 3), percentages of ester in the fuel (claims 4, 5, 16, 20, 21), use of different esters (claims 6-10, 17-19), use of different fuels (claims 11-14, 22), and the requirement that the composition be essentially free of alcohol (claims 36, 37).

The Board stated in its opinion that, to the extent that appellant had not chosen to separately argue the patentability of the appealed claims, "they stand or fall together," citing *In re Kaslow*, 707 F.2d 1366, 1376, 201 USPQ 67, 70 (CCPA 1979). We agree with the Board except as noted briefly below. It is not the practice of this court to review claims that an applicant has not separately *argued* at the Board level, because, *inter alia*, we lack the benefit of the Board's reasoned decision on the separate patentability of those claims. *Id.* at 1376, 201 USPQ at 70; *In re Herbert*, 461 F.2d 1390, 1391, 174 USPQ 259, 260 (CCPA 1972). We will therefore review only the merits of the composition claims, as did the Board.

[ 1 ] The Board found that the claims to compositions of a hydrocarbon fuel and a tetra-orthoester were *prima facie* obvious over Sweeney '417 and '267 in view of Elliott and Howk. We agree. Appellant argues that none of these references discloses or suggests the new use which she has discovered. That is, of course, true, but the composition claims are not limited to this new use; *i.e.*, they are not physically or structurally distinguishable over the prior art compositions except with respect to the orthoester component. We believe that the PTO has established, through its combination of references, that there is a sufficiently close relationship between the tri-orthoesters and tetra-orthoesters (see the cited Elliott and Howk references) in the fuel oil art to create an expectation that hydrocarbon fuel compositions

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containing the tetra-esters would have similar properties, including water scavenging, to like compositions containing the tri-esters, and to provide the motivation to make such new compositions. Howk teaches use of both tri- and tetra-orthoesters in a similar type of chemical reaction. Elliott teaches their equivalence for a particular practical use.

Our case law well establishes that such a fact situation gives rise to a *prima facie* case of obviousness. See *In re Shetty*, 566 F.2d 81, 85, 195 USPQ 753, 755-56 (CCPA 1977); *In re Albrecht*, 514 F.2d 1385, 1388, 185 USPQ 590, 593 (CCPA 1975); *In re Murch*, 464 F.2d 1051, 1054, 175 USPQ 89, 91 (CCPA 1972); *In re Hoch*, 428 F.2d 1341, 1343, 166 USPQ 406, 409 (CCPA 1970).

Appellant cites *In re Wright*, 848 F.2d 1216, 1219, 6 USPQ2d 1959, 1961 (Fed.Cir. 1988), for the proposition that a *prima facie* case of obviousness requires that the prior art suggest the claimed compositions' properties and the problem the applicant attempts to solve. The earlier panel opinion in this case, *In re Dillon*, 892 F.2d 1554, 13 USPQ2d 1337 (now *withdrawn*), in fact stated "a *prima facie* case of obviousness is not deemed made unless both (1) the new compound or composition is structurally similar to the reference compound or composition and (2) there is some suggestion or expectation *in the prior art* that the new compound or composition will have the *same or a similar utility as that discovered by the applicant*." *Id.* at 1560, 13 USPQ2d at 1341 (emphasis added).

[ 2 ] [ 3 ] This court, is reconsidering this case *in banc*, reaffirms that structural similarity between claimed and prior art subject matter, proved by combining references or otherwise, where the prior art gives reason or motivation to make the claimed compositions, creates a *prima facie* case of obviousness, and that the burden (and opportunity) then falls on an applicant to rebut that *prima facie* case. Such rebuttal or argument can consist of a comparison of test data showing that the claimed compositions possess unexpectedly improved properties or properties that the prior art does not have ( *In re Albrecht*, 514 F.2d 1389, 1396, 185 USPQ 585, 590 (CCPA 1975); *Murch*, 464 F.2d at 1056, 175 USPQ at 92), that the prior art is so deficient that there is no motivation to make what might otherwise appear to be obvious changes ( *Albrecht*, 514 F.2d at 1396, 185 USPQ at 590; *In re Sterniski*, 444 F.2d 581, 170 USPQ 343 (CCPA 1971); *In re Ruschig*, 343 F.2d 965, 145 USPQ 274 (CCPA 1965)), or any other argument or presentation of evidence that is pertinent. There is no question that all evidence of the properties of the claimed compositions and the prior art must be considered in determining the ultimate question of patentability, but it is also clear that the discovery that a claimed composition possesses a property not disclosed for the prior art subject matter, does not by itself defeat a *prima facie* case. *Shetty*, 566 F.2d at 86, 195 USPQ at 756. Each situation must be considered on its own facts, but it is not necessary in order to establish a *prima facie* case of obviousness that both a structural similarity between a claimed and prior art compound (or a key component of a composition) be shown and that there be a suggestion in or expectation from *the prior art* that the claimed compound or composition will have the same or a similar utility *as one newly discovered by applicant*. To the extent that *Wright* suggests or holds to the contrary, it is hereby *overruled*. In particular, the statement that a *prima facie* obviousness rejection is not supported if no reference shows or suggests the newly-discovered properties and results of a claimed structure is not the law.<sup>3</sup>

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<sup>3</sup> The earlier, now-*withdrawn* Dillon opinion, this opinion, and the dissent cite and rely on cases involving claims to chemical compounds, whereas this case involves compositions. The reason for this reliance is that, in this case, the principal difference between the claimed and prior art compositions is the difference between chemical compounds, *viz.*, tri-orthoesters and tetra-orthoesters. Cases dealing with chemical compounds are therefore directly analogous here and, in view of the history of this case and its *in banc* status, we will make much comment on these cases in this opinion. We do not, however, intend to imply that in all cases involving claimed compositions, structural obviousness between involved chemical compounds necessarily makes the claimed compositions *prima facie* obvious.

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Under the facts we have here, as described above, we have concluded that a *prima facie* case has been established. The art provided the motivation to make the claimed compositions in the expectation that they would have similar properties. Appellant had the opportunity to rebut the *prima facie* case. She did not present any showing of data to the effect that her compositions had properties not possessed by the prior art compositions or that they possessed them to an unexpectedly greater degree. She attempted to refute the significance of the teachings of the prior art references. She did not succeed and we do

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not believe the PTO was in error in its decision.

[ 4 ] Appellant points out that none of the references relates to the problem she confronted, citing *In re Wright*, and that the combination of references is based on hindsight. It is clear, however, that appellant's claims have to be considered as she has drafted them, *i.e.*, as compositions consisting of a fuel and a tetra-orthoester, and that Sweeney '417 and '267 describe the combination of a liquid fuel with a related compound, a tri-orthoester. While Sweeney does not suggest appellant's use, her composition claims are not limited to that use;<sup>4</sup> the claims merely recite compositions analogous to those in the Sweeney patents, and appellant has

made no showing overcoming the *prima facie* presumption of similar properties for those analogous compositions. The mention in the appealed claims that the amount of orthoester must be sufficient to reduce particulate emissions is not a distinguishing limitation of the claims, unless that amount is different from the prior art and critical to the use of the claimed composition. See *In re Reni*, 419 F.2d 922, 925, 164 USPQ 245, 247 (CCPA 1970). That is not the case here. The amount of ester recited in the dependent claims can be from 0.05-49%, a very broad range; a preferred range is .05-9%, compared with a percentage in Sweeney '417 approximately equimolar to the amounts of water in the fuel which the ester is intended to remove (.01-5%).

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<sup>4</sup> The dissent misinterprets this comment as indicating that claims to new compounds and compositions must contain a limitation to a specific use, and states that past cases have rejected this proposition. Our comment only points out that the composition claims on appeal are not structurally or physically distinguishable from the prior art compositions by virtue of the recitation of their newly-discovered use.

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[ 5 ] Appellant attacks the Elliott patent as non-analogous art, being in the field of hydraulic fluids rather than fuel combustion. We agree with the PTO that the field of relevant prior art need not be drawn so narrowly. As this court stated in *In re Deminski*, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed.Cir. 1986) (quoting *In re Wood*, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979)):

he determination that a reference is from a non-analogous art is therefore two-fold. First, we decide if the reference is within the field of the inventor's endeavor. If it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved.

Following that test, one concerned with the field of fuel oils clearly is chargeable with knowledge of Sweeney '417, which discloses fuel compositions with tri-orthoesters for dewatering purposes, and chargeable with knowledge of other references to tri-orthoesters, including for use as dewatering agents for fluids, albeit other fluids. These references are "within the field of the inventor's endeavor." Moreover, the statement of equivalency between tri- and tetra-orthoesters in Elliott is not challenged. We therefore conclude that Elliott is not excludable from consideration as non-analogous art. It is evidence that supports the Board's holding that the prior art makes the claimed compositions obvious, a conclusion that appellant did not overcome.

[ 6 ] Appellant urges that the Board erred in not considering the unexpected results produced by her invention and in not considering the claimed invention as a whole. The Board found, on the other hand, that no showing was made of unexpected results for the claimed compositions compared with the compositions of Sweeney. We agree. Clearly, in determining patentability the Board was obligated to consider all the evidence of the properties of the claimed invention as a whole, compared with those of the prior art. However, after the PTO made a showing that the prior art compositions suggested the claimed compositions, the burden was on the applicant to overcome the presumption of obviousness that was created, and that was not done. For example, she produced no evidence that her compositions possessed properties not possessed by the prior art compositions. Nor did she show that the prior art compositions and use were so lacking in significance that there was no motivation for others to make obvious variants. There was no attempt to argue the relative importance of the claimed compositions compared with the prior art. See *In re May*, 574 F.2d 1082, 1092-95, 197 USPQ 601, 609-11 (CCPA 1978).

[ 7 ] Appellant's patent application in fact included data showing that the prior art compositions containing tri-orthoesters had equivalent activity in reducing particulate emissions (she apparently was once claiming such compositions with either tri-orthoesters or tetra-orthoesters). She asserts that the examiner used her own showing of equivalence against her in violation of the rule of *In re Ruff*, 256 F.2d 590, 596, 118 USPQ 340, 346 (CCPA 1958). While we caution against such a practice, it is clear to us that references by the PTO to the comparative

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data in the patent application were not employed as evidence of equivalence between the tri- and tetra-orthoesters; the PTO was simply pointing out that the applicant did not or apparently could not make a showing of superiority for the claimed tetra-ester compositions over the prior art tri-ester compositions.

#### Other Claims

[ 8 ] As indicated above, the Board held that it would not consider the appealed claims separately, since appellant did not. Nonetheless, appellant, in her brief before the Board, did refer generally to claims directed to fuels essentially free of alcohol (Brief at 32, J. App. at 122), and the Board, in its decision, did respond, stating that no objective evidence was presented to establish any different or unexpected results from limiting the amount of alcohol to less than 1%, *In re Dillon*, No. 87-0944, slip op. at 9-10 (Bd. Pat.App. & Int. Nov. 25, 1987). We agree. Moreover, Sweeney '417 describes compositions which also contain less than 1% alcohol, so there is no real distinction in the claims over the prior art.

Appellant also *argued* in her brief to the Board that she "must contest" the examiner's position concerning



claims limited to no more than 5 or 9 volume percent added orthoester, mentioning claims 16-21 and 27-31. The Board did not expressly deal with these claims, but it is clear to us that, since these limits do not result in an amount of ester different from that disclosed to remove water in Sweeney '417, and no criticality is shown for these limitations, the subject matter of these claims has not been shown to have been nonobvious.

Regarding the method claims, the Commissioner urges affirmance, citing *In re Durden*, 763 F.2d 1406, 226 USPQ 359 (Fed.Cir. 1985), for the proposition that even "substitution of an unobvious starting material into an old process does not necessarily result in an unobvious process." The PTO has, as the Commissioner urges here, applied *Durden* regularly to claims to processes of making and processes of using, on the ground that the type of step involved in the claimed process is not novel.<sup>5</sup>

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<sup>5</sup> See M.A. Litman, *Obvious Process Rejections Under 35 USC 103*, 71 JPTOS 775 (1989); H.C. Wegner, *Much Ado About Durden*, 71 JPTOS 785 (1989).

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We make no judgment as to the patentability of claims that Dillon might have made and properly *argued* to a method directed to the novel aspects of her invention, except to question the lack of logic in a claim to a method of reducing particulate emissions by combusting. Suffice it to say that we do not regard *Durden* as authority to reject as obvious every method claim reading on an old *type of process*, such as mixing, reacting, reducing, etc. The materials used in a claimed process as well as the result obtained therefrom, must be considered along with the specific nature of the process, and the fact that new or old, obvious or nonobvious, materials are used or result from the process are only factors to be considered, rather than conclusive indicators of the obviousness or nonobviousness of a claimed process. When any applicant properly presents and argues suitable method claims, they should be examined in light of all these relevant factors, free from any presumed controlling effect of *Durden*. *Durden* did not hold that all methods involving old process steps are obvious; the court in that case concluded that the particularly claimed process was obvious; it refused to adopt an unvarying rule that the fact that nonobvious starting materials and nonobvious products are involved *ipso facto* makes the process nonobvious. Such an invariant rule always leading to the opposite conclusion is also not the law. Thus, we reject the Commissioner's argument that we affirm the rejection of the method claims under the precedent of *Durden*.

[ 9 ] However, appellant did not argue in her brief the separate patentability of her method claims. The statement in her brief to the Board that "the invention 'as a whole' includes the property of the claimed compositions - which property is taken advantage of in the method claims" (Brief at 22, J. App. at 112) is not such a separate argument, since it implies more an added argument for the patentability of the composition claims than an argument that, even if the claimed compositions are found to have been obvious, the claimed methods were nonobvious for particularly stated reasons. Moreover, no such reasons were particularly stated by Dillon. We will therefore not analyze these claims separately and affirm the Board's rejection on that basis.

### **The Dissent**

The strong assertions by the dissent and its treatment of some of the case law impel us to make the following comments:

The dissent argues that our decision is "contrary to the weight and direction of ... precedent, as embodied in over three decades of decision"; that we are resurrecting the "Hass-Henze" Doctrine, which was "discarded thirty years ago"; and that our holding today "changes what must be proved in

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order to patent a new chemical compound and composition and its new use, and thus changes what is patentable." We have done none of the above.

What we have done is to decide the case before us on the basis of long-established principles which had provided a stable understanding of the chemical patent law until the issuance of the original panel opinion in this case which we have now vacated. Our intent is to restore the law to its state existing before that panel opinion.

The length of the dissent and the number of cases it discusses may convey the impression that the weight of past jurisprudence is contrary to our holding today. That is not the case. The cited cases are simply not controlling on the facts of the present case or they are not contrary. Many do not deal with the requirements of a *prima facie* case. Some involve process claims, not compound or composition claims. Others are not pertinent for other reasons.

In brief, the cases establish that if an examiner considers that he has found prior art close enough to the claimed invention to give one skilled in the relevant chemical art the motivation to make close relatives (homologs, analogs, isomers, etc.) of the prior art compound(s), then there arises what has been called a presumption of obviousness or a *prima facie* case of obviousness. *In re Henze*, 181 F.2d 196, 85 USPQ 261, (CCPA 1950); *In re Hass*, 141 F.2d 122, 127, 130, 60 USPQ 544, 548, (CCPA 1944). The burden then shifts to the applicant, who then can present arguments and/or data to show that what appears to be obvious, is not in

fact that, when the invention is looked at as a whole. *In re Papesch*, 315 F.2d 381, 137 USPQ 43 (CCPA 1963). The cases of *Hass* and *Henze* established the rule that, unless an applicant showed that the prior art compound lacked the property or advantage asserted for the claimed compound, the presumption of unpatentability was not overcome.

Exactly what facts constituted a *prima facie* case varied from case to case, but it was not the law that, where an applicant asserted that an invention possessed properties not known to be possessed by the prior art, no *prima facie* case was established unless the reference also showed the novel activity. There are cases, cited in the dissent, in which a *prima facie* case was not established based on lack of structural similarity. See *In re Grabiak*, 769 F.2d 729, 732, 226 USPQ 870, 872 (Fed.Cir. 1985); *In re Taborsky*, 502 F.2d 775, 780-81, 183 USPQ 50, 55 (CCPA 1974). Some of the cited cases also contained language suggesting that the fact that the claimed and the prior art compounds possessed the same activity were added factors in the establishment of the *prima facie* case. E.g., *In re Zeidler*, 682 F.2d 961, 966, 215 USPQ 490, 494 (CCPA 1982); *In re Grunwell*, 609 F.2d 486, 491, 203 USPQ 1055, 1058 (CCPA 1979); *In re Payne*, 606 F.2d 303, 314, 203 USPQ 245, 255 (CCPA 1979); *In re Swan Wood*, 582 F.2d 638, 641, 199 USPQ 137, 139 (CCPA 1978); *In re Lamberti*, 545 F.2d 747, 751, 192 USPQ 278, 281 (CCPA 1976); *In re Susi*, 440 F.2d 442, 445, 169 USPQ 423, 426 (CCPA 1971). Those cases did not say, however, as the dissent asserts, that, in the absence of the similarity of activities, there would have been no *prima facie* case.

For example, the dissent quotes a statement in *Grabiak* that "[w]hen chemical compounds have 'very close' structural similarities and similar utilities, without more a *prima facie* case may be made." 769 F.2d at 731, 226 USPQ at 871. That case does not state, as implied by the dissent, that without the similarity of utilities, there would not have been a *prima facie* case. A conclusion based on one set of facts does not necessarily rule out a similar conclusion with slightly different facts.

One case cited by the dissent as "rejecting the PTO's interpretation of *Henze* as establishing a 'legal presumption' of obviousness" was *In re Mills*, 281 F.2d 218, 126 USPQ 513 (CCPA 1960). All that case decided, however, was that a one-carbon member of a homologous series is too far from the prior art disclosure of 8 to 12 members to justify the presumption. *Id.* at 223-24, 126 USPQ at 517-18.

We will not review all the cases cited in the dissent, but *Stemniski* is an important case, for it overruled *Henze* and *In re Riden*, 318 F.2d 761, 138 USPQ 112 (CCPA 1963) (a case similar to *Henze*), "to the extent that [they] are inconsistent with the views expressed herein." 444 F.2d at 587, 170 USPQ at 348. The views that were expressed therein were that:

here the prior art reference neither discloses nor suggests a utility for certain described compounds, why should it be said that a reference makes obvious to one of ordinary skill in the art an isomer, homolog or analog or related structure, when that mythical, but intensely practical, person knows of no "practical" reason to make the reference compounds, much less any structurally related compounds?

*Id.* at 586, 170 USPQ at 347. Thus, *Stemniski*, rather than destroying the established practice of rejecting closely-related compounds as *prima facie* obvious, qualified it

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by holding that a presumption is not created when the reference compound is so lacking in any utility that there is no motivation to make close relatives.

*Albrecht* followed this line of thinking when it held that the prior art compound so irritated the skin that it could not be regarded as useful and therefore did not create a motivation to make related compounds. 514 F.2d at 1392, 1395-96, 185 USPQ at 587.

Properties, therefore, are relevant to the creation of a *prima facie* case in the sense of affecting the motivation of a researcher to make compounds closely related to or suggested by a prior art compound, but it is not required, as stated in the dissent, that the prior art disclose or suggest the properties newly-discovered by an applicant in order for there to be a *prima facie* case of obviousness.

The dissent cites the seminal case of *Papesch*, suggesting that it rejected the principle that we now "adopt," thereby implying that we are weakening *Papesch*. We are doing nothing of the sort. *Papesch* indeed stated that a compound and all of its properties are inseparable and must be considered in the determination of obviousness. We heartily agree and intend not to retreat from *Papesch* one inch. *Papesch*, however, did not deal with the requirements for establishing a *prima facie* case, but whether the examiner had to consider the properties of an invention at all, when there was a presumption of obviousness. 315 F.2d at 391, 137 USPQ at 51. The reference disclosed a lower homolog of the claimed compounds, so it was clear that impliedly a *prima facie* case existed; the question was whether, under those circumstances, the biological data were admissible at all. The court ruled that they were, *id.* at 391, 137 USPQ at 51, and we agree with that result. The dissent quotes the brief passage at the end of the *Papesch* opinion to the effect that the prior art must "at least to a degree" disclose the applicant's desired property, *id.* at 392, 137 USPQ at 52, but this brief mention was not central to the decision in that case and did not refer to the requirements of a *prima facie* case. *Papesch* is

irrelevant to the question of the requirements for a *prima facie* case, which is the question we have here.

The dissent refers to a number of cases, including *In re Lunsford*, 357 F.2d 380, 148 USPQ 716 (CCPA 1966), stating that the court had rejected the Patent Office's position of "structures only." That case must be understood in the context of the refusal of the examiner to consider any showing of improved properties, not in the context of a discussion whether a *prima facie* case was created. The compounds were conceded to be sufficiently close to the prior art that, without a showing of a significant difference in properties, they would have been obvious. *Id.* at 381, 148 USPQ at 717.

The dissent asserts that the *Shetty* case "diverg[ed] from the weight of [the court's] precedent" in holding that a *prima facie* case was made based on similarities of structure. The court, in that opinion, accepted the *prima facie* case and concluded that "appellant ha[d] offered no evidence of unobviousness, as by showing an actual difference in properties." 566 F.2d at 86, 195 USPQ at 756 (citing *Hoch* ). The opinion does not suggest that the court was diverging from the weight of precedent.

The dissent mentions positions advanced by the Commissioner, including citing the *In re Mod*, 408 F.2d 1055, 161 USPQ 281 (CCPA 1969) and *In re de Montmollin*, 344 F.2d 976, 145 USPQ 416 (CCPA 1965) decisions. We do not, however, in today's decision necessarily adopt any positions of the Commissioner other than those stated in our opinion and note that neither *Mod* nor *de Montmollin* dealt with the requirements of a *prima facie* case. They concerned the question whether the existence of a new property for claimed compounds in addition to a property common to both the claimed and related prior art compounds rendered the claimed compounds unobvious. We are not faced with that question today.

Other cases, e.g., *In re Gyurik*, 596 F.2d 1012, 1018, 201 USPQ 552, 557-58 (CCPA 1979) ("[n]o common-properties presumption rises from the mere occurrence of a claimed compound at an intermediate point in a conventional reaction yielding a specifically named prior art compound"), have qualified the original rule of the *Hass-Henze* cases, but it is clear that they have not enunciated a rule that, in order to make a *prima facie* case of obviousness, the examiner must show that the prior art suggests a new property discovered by applicant. In not accepting that principle today, as urged in the dissent, we are therefore not retreating from the recent trend of case law development or changing the law.

Another example of the lack of direct pertinence of a case quoted in the dissent is *May*, which the dissent cites as an example of the consistent line of decisions to the effect that "both structure and properties must be suggested in the prior art before a *prima facie* case of obviousness was deemed made." This case does not state that both structure and properties "must" be suggested. The claimed and prior art compositions were both disclosed as having analgesic activity; it was

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conceded that a *prima facie* case was made out, but the court concluded that applicants had rebutted the presumed expectation that structurally similar compounds have similar properties with a showing of an actual unexpected difference of properties between the claimed compound and the prior art. 574 F.2d at 1095, 197 USPQ at 611. The applicant in that case thus made a showing that Dillon did not make in this case.

Properties must be considered in the overall evaluation of obviousness, and the lack of any disclosure of useful properties for a prior art compound may indicate a lack of motivation to make related compounds, thereby precluding a *prima facie* case, but it is not correct that similarity of structure and a suggestion of *the activity of an applicant's compounds* in the prior art are necessary before a *prima facie* case is established.

#### Conclusion

We affirm the Board's decision rejecting claims 2-14, 16-22, and 24-37.

AFFIRMED

#### Concurring Opinion Text

##### Concurrence By:

Archer, J., with whom Markey and Michel, JJ., join, joining in part.

I join the majority opinion except to note that the comments on *In re Durden*, 763 F.2d 1406, 226 USPQ 359 (Fed.Cir. 1985), are unnecessary to the decision of this case. The method claims were not rejected by the Board on the basis of that case and, in fact, were not separately considered by the Board. Until a rejection of a method claim based on *Durden* is appealed to this court and the issue fully briefed, it is premature to consider the scope and effect of *Durden*. Accordingly, I do not join this part of the majority opinion.

#### Dissenting Opinion Text

##### Dissent By:

Newman, J., with whom Cowen and Mayer, JJ., join, dissenting.

The court today resolves certain disparities in the extensive body of precedent on the question of obviousness of new chemical compounds and compositions. However, these disparities are resolved in a way that is contrary to the weight and direction of this precedent, as embodied in over three decades of decision. The court departs from its considered development of the law governing patentability of new chemical compounds and compositions, and reinstates a rule of "structural obviousness". In so ruling the court not only rejects the weight of precedent, but also errs in the application of 35 U.S.C. §§101, 102, and 103.

The majority's holding that *prima facie* obviousness of new chemical compounds and compositions is determined based only on structural similarity to prior art compounds and compositions having a known use<sup>1</sup> is reminiscent of the "Hass-Henze Doctrine" of earlier days. This doctrine was discarded thirty years ago, and although it resurfaced on occasion, its original sweep was *superseded* by many years of judicial analysis. Review of this analysis shows the courts' evolving understanding of the characteristics of chemical inventions, particularly the inseparability of chemical properties and chemical structure, and the legal consequences of this scientific fact.

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<sup>1</sup> The court allows one exception, as I shall discuss.

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Judicial decisions over the past three decades established the general rule that the determination of *prima facie* obviousness of new chemical compounds and compositions and their uses can not be based on chemical structure alone, but must also include consideration of all their properties, including those discovered by the applicant. This rule had important procedural and substantive consequences during patent examination, for it determined the *kind* of evidence and proof that was required of a patent applicant. The ruling of this *in banc* court changes what must be proved in order to patent a new chemical compound or composition, and thus changes what is patentable.

The body of precedent establishing the burdens of modern patent examination was developed in judicial decisions applying the 1952 Patent Act. As I shall discuss in greater detail, when patent examination showed that the prior art suggested the inventor's new chemical structure and the inventor's newly discovered property and use, a *prima facie* case of obviousness of the new chemical compound or composition and its use was deemed made.

The inventor could, of course, argue that the differences from the prior art were such that a *prima facie* case was not made. And the inventor could rebut the *prima facie* case of obviousness, by showing some unexpected difference in structure or properties and use, not apparent from the teachings of the prior art. Such rebuttal was generally presented in the form of comparative experimental data, whereby the inventor demonstrated that the properties of his or her new chemical compound or composition achieved some unobvious or unexpected result or advantage, as compared with the actual properties of the prior art structure. This rebuttal often re

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quired the inventor to go beyond the general teachings in the prior art, and prove that the prior art compound did not, in fact, possess the specific property and advantage of the new compound or composition. Such proofs were invariably required when the prior art suggested the general property and use discovered by the applicant. Many dozens of decisions of the CCPA and this court illustrate this procedure, and the variety of factual circumstances in which it has been invoked.

In accordance with the court's *in banc* holding,<sup>2</sup> a new chemical compound or composition is not patentable even when the prior art does not suggest that the new chemical compound or composition would have the applicant's newly discovered property and use, unless the applicant makes the same showing that is required when the prior art does suggest the applicant's new property and use.

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<sup>2</sup> The majority holds that a *prima facie* case of obviousness is made whenever the structure of the applicant's new compound or composition (or mechanical device) is "obvious" from that shown in the prior art, independent of whether the prior art suggests or makes obvious the applicant's newly discovered property and use. The majority allows an exception for situations where the prior art gives no "reason or motivation to make the claimed invention", and duly makes clear that this means motivation to make the new compound or composition for the prior art use, not for the applicant's newly discovered use. This exception comes into play only when the prior art structure has no known utility; and a few such situations are reported, e.g. *In re Stenmiski*, 444 F.2d 581, 170 USPQ 343 (CCPA 1971) (prior art compounds used only as intermediates), and *In re Albrecht*, 514 F.2d 1389, 185 USPQ 585 (CCPA 1975) (no practical utility). Thus, according to the majority, when the prior art chemical compound or composition has no known use, the prior art provides no "reason or motivation" to make a structurally similar new compound or composition; and in such case the prior art would not make a *prima facie* case of obviousness based on structural similarity alone.

While I welcome any reduction in the sweep of the court's holding, this exception is of trivial impact.

In most cases the prior art compound or composition has some known use; and thus for most cases the majority's "motivation" test would be met based solely on similarity of structure. This is an important change of law. While the holdings of the prior law were not entirely consistent - see the various CCPA opinions discussed *post* - this *in banc* court now establishes the rule that will control all cases in the future.

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The applicant is thus required to show "unexpected" properties and results, *whether or not* the prior art provides an expectation or suggestion of the properties and results disclosed in the patent application. And unless the applicant proves that the prior art structure does not actually possess the same unobvious property that the applicant discovered for the new structure, the court holds today that the new chemical compound or composition is not patentable. This is an incorrect application of the patent statute, and a rejection of the wisdom of precedent. Therefore, respectfully, I dissent.

**I**

## **THE LAW**

**A**

### ***The In Banc Issue***

Diane M. Dillon appeals the decision of the PTO Board of Patent Appeals and Interferences, which had rejected all of Dillon's claims on the basis that "The claimed subject matter would have been *prima facie* obvious from the combined teachings of the references." The Commissioner, asking the court to choose between divergent decisions of the CCPA, stated the PTO position that *prima facie* obviousness should be based on chemical structure alone:

f the prior art suggests an inventor's compound or composition per se, that compound or composition would be *prima facie* obvious, regardless of the properties disclosed in the inventor's application.

Commissioner's brief at 24.

The majority of the *in banc* court adopts the Commissioner's position, expressly rejecting the panel's position that the properties and use discovered by the applicant must be considered in connection with determination of the *prima facie* case under section 103, thereby overruling all prior decisions that so held.<sup>3</sup>

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<sup>3</sup> It is the role of the *in banc* court to resolve "a precedent-setting question of exceptional importance", Fed.Cir.R. 35(a), and not simply to second-guess the panel on the facts of a particular case.

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I would hold that determination of whether a *prima facie* case of obviousness has been made requires consideration of the similarities and differences as to structure *and* properties and utility, between the applicant's new compounds or compositions and those shown in the prior art. The *Graham* [ *v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966)] factors can not be ignored in determination of the *prima facie* case under 35

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U.S.C. §103.<sup>4</sup> As illustrated in precedent, pertinent considerations in determination of whether a *prima facie* case is made include the closeness of the prior art subject matter to the field of the invention, the motivation or suggestion in the prior art to combine the reference teachings, the problem that the inventor was trying to solve, the nature of the inventor's improvement as compared with the prior art, and a variety of other criteria as may arise in a particular case; all with respect to the invention as a whole, and decided from the viewpoint of a person of ordinary skill in the field of the invention.

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<sup>4</sup> 35 U.S.C. §103. A patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains....

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Of course not all these aspects will loom large in every case, but when present they must be considered. They are as pertinent to determination of the *prima facie* case as they are to the determination that is made after rebuttal evidence is adduced by the applicant. Structure alone, without consideration of the applicant's newly discovered properties, is an incomplete focus for consideration of these factors.

**B**

### ***The Prima Facie Case***

The *prima facie* case, as used in patent examination, means not only that the evidence of the prior art reasonably allows the examiner's conclusion of unpatentability, but also that the prior art compels such a

conclusion as a matter of law, if the applicant produces no evidence to rebut it. *Black's Law Dictionary*, 1071 (5th Ed. 1979); *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed.Cir. 1984). See the discussion in *In re Mills*, 281 F.2d 218, 222 & n.2, 126 USPQ 513, 516 & n.2 (CCPA 1960), of the "presumption of unpatentability" based on prior art, a judicial usage before the term "*prima facie* case" appeared in CCPA and board decisions.

Patentability is determined, in the first instance, by examination of the patent application in the PTO. The prior art is searched by the patent examiner, who determines whether a *prima facie* case of unpatentability is made based on what was known in the prior art. *Piasecki, supra*. The *prima facie* rejection may be challenged by the applicant on grounds such as that the rejection is insufficiently supported, or incorrect, or based on illogical reasoning; or, if a *prima facie* case is made, evidence may be adduced in rebuttal. *In re Heldt*, 433 F.2d 808, 811, 167 USPQ 676, 678 (CCPA 1970). The *prima facie* case is not "set in concrete", and upon the submission of rebuttal evidence the determination of obviousness *vel non* is made on the entire record. *In re Rinehart*, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

The initial determination by the patent examiner is critical to further proceedings, for the presence or absence of a *prima facie* case of obviousness controls the need for the applicant to adduce rebuttal evidence of unobviousness. The procedure serves to clearly allocate the burdens of going forward and of persuasion as between the examiner and the applicant. *In re Johnson*, 747 F.2d 1456, 1460, 223 USPQ 1260, 1263 (Fed.Cir. 1984). It determines what the applicant must prove, and the kind of evidence the applicant must provide. Thus it determines what is patentable under the statute.

While many judicial decisions turn on the question of adequacy of the rebuttal evidence, the concern of the *in banc* court today is the issue of the *prima facie* case. For when, as here, no rebuttal evidence is presented, determination of the *prima facie* case is decision of the question of patentability.

As illustrated in Dillon's case, the question of whether there is a *prima facie* case of obviousness controls whether Dillon is required to prove that her newly discovered property of particulate (soot) reduction during combustion is not actually possessed by the prior art composition, when the prior art composition was not known or suggested to have this property. Dillon did not so prove, and the Commissioner urges that since Dillon's specification itself discloses that the prior art composition does possess this newly discovered property, the *prima facie* case based on structural similarity was not rebutted.

Heretofore, the courts generally recognized a controlling distinction between the two principal types of factual situations that arise when a patent applicant's new chemical compound or composition has a structure that is "similar" to chemical structures shown in the prior art: (1) those where the prior art suggests, at least in general terms, that the new chemical compound or composition will have the applicant's newly discovered property and use; and (2) those where it does not. These factual situations have had different consequences with respect to whether a *prima facie* case of obviousness was made. The difference turned on whether

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or not the structure and properties and use of a new chemical compound or composition were suggested in the prior art. The distinction determined whether the applicant was required to come forward with rebuttal evidence, which often was in the form of new technological information not known to the prior art, in order to establish an "unexpected" difference between the properties discovered by the applicant and those actually possessed by the prior art structure.

This distinction brought a consistent application of the law of 35 U.S.C. §103 to the examination of chemical inventions, for it established the framework wherein the law was applied to the facts of each case. The court today rejects this distinction, holding *in banc* that it suffices to show *prima facie* obviousness whenever the prior art describes a similar chemical structure, provided only that the prior art gives some "reason or motivation" to make the claimed chemical structure, "regardless of the properties disclosed in the inventor's application", in the Commissioner's words. This position is contrary to the weight and direction of precedent, as I shall illustrate, and is contrary to the statutory imperatives of Title 35. <sup>5</sup>

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<sup>5</sup> The majority's insistence that it is merely reinstating the *status quo ante* can not be, of course, for the *in banc* holding that the applicant's newly discovered properties and use are not considered in determining *prima facie* obviousness under section 103 (unless the prior art structure itself has no known use), such that the applicant must now prove that the prior art structure does not possess the newly discovered property and use, forecloses reliance on contrary precedent.

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## C

### Precedent

It is critical to an effective patent system that there be consistent law, consistently applied, despite the great diversity of technologies that the patent system must serve. The law that is applied in determining whether a *prima facie* case of obviousness is made, as to new chemical compounds and compositions and their uses, has evolved from analysis of many different factual situations. The large number of decisions on this issue, of the

court and the CCPA, produced a rich body of precedent.

The following outline of precedent is chronological, and has its roots in cases decided before enactment of the 1952 Patent Act.

For a while, during an earlier period of modern chemistry, "structural obviousness" alone was deemed to create a presumption of unpatentability. Leading decisions were *In re Hass*, 141 F.2d 122, 127, 130, 60 USPQ 544, 548, (CCPA 1944) and *In re Henze*, 181 F.2d 196, 85 USPQ 261 (CCPA 1950). In these decisions the CCPA held that there was a presumption of obviousness based solely on the close similarity of structure of chemical homologs,<sup>6</sup> regardless of the new property and use that the applicant discovered. Thus a new compound, if a homolog of a known compound, was not patentable unless the applicant overcame this presumption by showing that there was in fact a significant and unexpected difference in the actual properties<sup>7</sup> of the new compound as compared with the actual, albeit unknown to the prior art, properties of the known homolog:

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<sup>6</sup> A homolog is a chemical compound that differs from another compound only by one or more methylene groups. An "adjacent" homolog differs by precisely one methylene group. *Henze*, 181 F.2d at 200, 85 USPQ at 264.

<sup>7</sup> As used in these decisions "property" and "utility" refer to the utilitarian property that complies with 35 U.S.C. §101, and not to physical or chemical parameters not pertinent to patentability. *In re Krazinski*, 347 F.2d 656, 659, 146 USPQ 25, 28 (CCPA 1965) ("a 'utility' is really a manifestation of a 'property'").

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The burden is on the applicant to rebut that presumption by a showing that the claimed compound possesses unobvious or unexpected beneficial properties not actually possessed by the prior art homologue.

*Henze*, 181 F.2d at 201, 85 USPQ at 265 (emphases in original). This difference in properties was required to be shown to exist, whether or not the prior art suggested the property and utility discovered by the inventor for the new compound, and whether or not there was any reason to expect the prior art compound to have that property or utility. The court held:

It is immaterial that the prior art homologue may not be recognized or *Known* to be useful for the same purposes or to possess the same properties as the claimed compound.

*Id.* (emphasis in original).

The courts soon expressed dissatisfaction with this rule. See the discussion, and cases cited, in *In re Mills*, 281 F.2d 218, 126 USPQ 513 (CCPA 1960). In *Mills* the CCPA limited the *Henze* presumption to adjacent homologs, and rejected the PTO's interpretation of *Henze* as establishing a "legal presumption" of obviousness. The court held that homology alone does not create an inference of unpatentability or

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shift the burden of persuasion, but is simply a fact "which must be considered with all other relevant facts before arriving at the conclusion of 'obviousness' specified in 35 U.S.C. §103." *Id.* at 224, 126 USPQ at 518.

Throughout the 1960's, and thereafter, the CCPA stressed that properties as well as structure were material to the patentability of new chemicals, and *must* be considered. The case of *In re Papesch*, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) is often cited for its statement that "a chemical compound and all of its properties are inseparable." *Id.* at 391, 137 USPQ at 51. See *Papesch* for citation of a number of decisions of the CCPA and other courts after *Henze*, illustrating judicial understanding that chemical structure is not severable from chemical (including biochemical) properties in patentability determinations; for it is the properties that determine the utility that is requisite to patentability.

The *Papesch* court rejected the principle that this court now adopts, for in *Papesch* the court held that the prior art must disclose "at least to a degree" the applicant's desired property and utility. The court said:

The other factor of importance ... is that the prior art disclosure was not merely of a structurally similar compound but also, at least to a degree, of *the same desired property* relied on for the patentability of the new compound. Such an "other factor" must of course be considered because it bears on the obviousness of the compound, which is, realistically and legally, a composite of both structure and properties.

*Id.* at 392, 137 USPQ at 52 (emphasis in original). The majority today disposes of this passage, long the bulwark of chemical practice, as "a brief mention", and "irrelevant" to the *prima facie* case. This passage has been reinforced myriad times after its appearance in *Papesch*, and has been a foundation of the *prima facie* case in examination of chemical patent applications for obviousness in terms of section 103.

Although the CCPA and the Patent Office at the time of *Papesch* did not generally use the terminology " *prima facie* case", the CCPA's holding that a compound is "realistically and legally, a composite of both structure and properties", underlies the requirement that both structure and properties be considered. *Papesch* and its



extensive progeny establish that the prior art disclosure should be "at least to a degree, of the same desired property", *id.*, even for a homolog.<sup>8</sup> Absent such disclosure, the *presumption* of unpatentability did not arise.<sup>9</sup> This requirement, that both structure and properties be considered, simply continued when the terminology of the *prima facie* case was adopted to describe a legally sufficient case of obviousness under section 103.

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<sup>8</sup> Dillon's tetra-orthoester is not a homolog of the tri-orthoester. Nor is it an isomer. The majority opinion simply describes the tri-orthoester and tetra-orthoester structures as having "a sufficiently close relationship", without the precision of past decisions.

<sup>9</sup> In Dillon's case such disclosure was absent. It is undisputed that Dillon's property of soot-reduction during combustion was not disclosed for the prior art compositions.

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In *In re De Lajarte*, 337 F.2d 870, 143 USPQ 256 (CCPA 1964) the same principle was applied to a new composition. The CCPA held that similarity of chemical composition alone did not place on the applicant the obligation of proving that the prior art composition did not possess the applicant's newly discovered property and utility:

In the total absence of evidence in the record to indicate that the amber glass disclosed by Lyle would be expected to have desirable electrical insulating properties, we can find no justification for placing the burden on applicant to conduct experiments to determine the insulating properties of the colored glass disclosed by Lyle.

*Id.* at 874, 143 USPQ at 259. As in the modern usage of the *prima facie* case, the court held that the prior art must suggest both similar structure and property before the burden shifted to the applicant to prove unexpected differences. De Lajarte's claims were to a novel glass composition having insulating properties. The prior art (Lyle) reference showed a glass composition having what the examiner called "very slight differences" in structure, and the properties of amber color and durability. The court said:

If one were making a colorless glass free of carbon and sulfur, there would be little reason for using the Lyle formula since it was primarily designed to enhance color stability. In the absence of any showing why it would be obvious to modify Lyle's glass, a "103 rejection" must be *reversed*.

*Id.* at 875, 143 USPQ at 259.

In *In re Ruschig*, 343 F.2d 965, 145 USPQ 274 (CCPA 1965) the court again observed that the invention "indeed, is a 'conjunction of utility and product', though claimed as new compounds found to have the desired biological effect". (Emphasis in

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original.) The court criticized the PTO position that "the examiner and the board thought the compounds, looked upon as mere chemical formulae, would have been obvious". *Id.* at 973, 145 USPQ at 281. The court stated:

On the obviousness issue, the vague "basket" disclosure of possible uses in the French and Swedish patents and the equally vague disclosure of the Martin patent are unimportant. What is important is the fact that the utility *discovered by the appellants* is not disclosed in the prior art.

*Id.* at 977, 145 USPQ at 285 (emphasis in original).<sup>10</sup>

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<sup>10</sup> In *Ruschig* the court discussed the Commissioner's position that claims to compounds that are structurally similar to known compounds should "define" the newly discovered property on which patentability was based. The CCPA rejected such limitation, stating that "[v]aluable inventions should be given protection of value in the real world of business and the courts." 343 F.2d at 979, 145 USPQ at 286.

The majority of the court today, remarking that "the composition claims are not limited to [Dillon's] new use", hints that the result might be different if they were. *Ruschig* and other cases consistently rejected the proposition that claims to new compounds and compositions *must* contain a limitation to a specific use. Any change in this long-established practice requires careful thought. The majority also holds that Dillon's claim recitation of "a sufficient amount of [orthoester] to reduce the particulate emissions" is ineffective as a use limitation, adding uncertainty to claim draftsmanship.

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That the utility discovered by the applicant must be at least suggested in the prior art, in order to establish *prima facie* unpatentability of new compounds and compositions that are structurally similar to known chemicals, is the common thread that ties most of the decisions of the CCPA and the Federal Circuit. I do not attempt to include all of the cases that illustrate this point. I do, however, include representative cases of divergent holding, and those that appear to be relied on by the majority.

For example, the Commissioner cites *In re de Montmollin*, 344 F.2d 976, 145 USPQ 416 (CCPA 1965) as supporting authority. In *de Montmollin* the claimed invention was a new compound, described by the applicant as useful for dyeing wool and cotton. The reference showed structurally similar compounds useful for dyeing



wool. The court concluded that the additional ability of de Montmollin's claimed compound to dye cotton was not "sufficient to render the subject matter as a whole unobvious". *Id.* at 979, 145 USPQ at 417-18. This case simply illustrates determination of obviousness by comparing the structures and properties taught in the prior art with those disclosed by the applicant, and bringing judgment to bear on "the subject matter as a whole." *Id.* It does not support the position that a *prima facie* case under section 103 is made on structural similarity, regardless of the applicant's newly discovered property and use.

The principle that both structure and properties must be considered in connection with the *prima facie* case was directly treated in *In re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965), where the court held that "gross similarity" of chemical structure *and* the same area of pharmacological activity constituted a *prima facie* case of obviousness:

We agree with appellant's admonitions against deciding questions of chemical obviousness on the basis of structure *alone*, whether by means of a "mechanistic overlay" or otherwise. However, we think appellants have failed to present adequate evidence to overcome a *prima facie* showing of obviousness by reason of the admitted "gross structural similarities" of the art compounds, coupled with the fact those compounds are shown to have utility *in the same area of pharmacological activity*.

*Id.* at 850, 146 USPQ at 185 (emphasis in original).

Other decisions during this period illustrate varying judicial emphases, depending on the facts. When the compounds were quite closely related in chemical structure, as in the homologs and analogs of *In re Riden*, 318 F.2d 761, 138 USPQ 112 (CCPA 1963), or the position isomers of *In re Mehta*, 347 F.2d 859, 146 USPQ 284 (CCPA 1965), the court gave greater evidentiary weight to the structural similarities than when the structures were less directly comparable. However, the court regularly admonished that:

A compound is not, however, merely a structural formula; its properties as part of the whole must be considered.

*Id.* at 864, 146 USPQ at 287.

In *In re Lunsford*, 357 F.2d 380, 148 USPQ 716 (CCPA 1966) the court listed eight recent decisions in which it had rejected the Patent Office's position of "comparison of structures only":

Just how one finds the compounds "obvious" in the first instance, the examiner does not say, but apparently he envisions a comparison of structures *only*. That such an approach is not sanctioned by this court, although concededly the law was less well defined in June 1961, the date of

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the Examiner's Answer, can be seen, e.g., in *In re Krazinski*, 347 F.2d 656, 146 USPQ 25 [(CCPA 1965)]; *In re Ruschig*, 343 F.2d 965, 145 USPQ 274 [(CCPA 1965)]; *In re Ward*, 329 F.2d 1021, 141 USPQ 227 [(CCPA 1964)]; *In re Lunsford*, 327 F.2d 526, 140 USPQ 425 [(CCPA 1964)]; *In re Riden, Jr.*, 318 F.2d 761, 138 USPQ 112 [(CCPA 1963)]; *In re Papesch*, 315 F.2d 381, 137 USPQ 43 [(CCPA 1963)]; *In re Petering*, 301 F.2d 676, 133 USPQ 275 [(CCPA 1962)]; *In re Lambooy*, 300 F.2d 950, 133 USPQ 270 [(CCPA 1962)].

*Id.* at 382 n.2, 148 USPQ at 718 n.2 (emphasis in original). The court reiterated:

he discovered activities or properties are *part of* the things claimed, the compounds. ... [W]e, like the Patent Office, are required by the clear wording of section 103 to regard it as a relevant portion of the invention "as a whole."

*Id.* at 384, 148 USPQ at 720 (emphasis in original).

In a companion case, *In re Lunsford*, 357 F.2d 385, 148 USPQ 721 (CCPA 1966), the court again stressed that determination of obviousness must be based on both structure and properties. The court quoted the Patent Office position, in the examiner's words:

The argument that the "subject matter as a whole" under 35 U.S.C. 103 includes the compound and its utility is considered to be without merit.

*Id.* at 391, 148 USPQ at 725. The court once more firmly rejected that position:

It is reasonably clear that the examiner considered only the difference in *structures* between the claimed compounds and the prior art compounds.

Appellant was entitled to have differences between the claimed invention, *the subject matter as a whole*, and the prior art references of record evaluated.

*Id.* (emphasis in original). Referring to 35 U.S.C. §103, the court wrote:

It is not believed that [a person of ordinary skill in the art] would consider only the *structures* of the compounds[.]

*Id.* (emphasis in original).

These judicial analyses, written before the terminology of the *prima facie* case became routine in patent examination, nonetheless placed the burden on the examiner to come forward with prior art sufficient to support any purported suggestion of the applicant's properties:

Moreover, as a matter of law under 35 U.S.C. 103, the examiner must substantiate his "suspicions" on the basis of facts drawn from proper prior art. The issue to be resolved requires more than "suspicions;" it requires *facts*.

*Id.* (footnote omitted, emphasis in original).

The CCPA put "structural obviousness" in perspective when, again receiving this argument from the Commissioner, the court commented on the large numbers of yet-unmade compounds that would be "structurally obvious" to a chemist:

The solicitor has *reargued* in his brief the question of the obviousness of chlorpropamide to a chemist as a compound, that is, what we sometimes refer to as its "structural obviousness." This is not a matter of dispute. We think appellant would concede that all 1,237,464 compounds he claims to be within the Ruschig et al. disclosure or the 38,556 compounds he claims to be within the broadest patent claim, are structurally obvious.

*In re McLamore*, 379 F.2d 985, 989, 154 USPQ 114, 117 (CCPA 1967). Indeed, few of today's new chemicals have such imaginative structure that structurally similar compounds are not to be found in the prior art.<sup>11</sup> Nonetheless, the reasoning rejected in *McLamore* appeared two years later in the CCPA decision *In re Mod*.

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<sup>11</sup> In 1980 the Supreme Court noted that over 4,848,000 compounds had been listed by the Chemical Abstracts Service. *Dawson Chemical Co. v. Rohm & Haas Co.*, 448 U.S. 176, 221 n.23, 206 USPQ 385, 407 n.23 (1980). In 1990 the ten millionth specific compound had been entered in the register. *Chemical & Engineering News*, February 26, 1990, p. 30. This count is of characterized compounds, and does not include theoretical permutations and combinations such as those calculated in *McLamore*.

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*In re Mod*, 408 F.2d 1055, 161 USPQ 281 (CCPA 1969) was described by the Commissioner as "on all fours" with Dillon's facts. Mod's new compounds were adjacent homologs and isomers of known compounds that were described in the prior art as insecticides. Mod's compounds had "antimicrobial activity against a variety of micro-organisms such as bacteria, yeast, and molds". *Id.* at 1055, 161 USPQ at 282. The court held Mod's compounds unpatentable for obviousness, referring to the close similarities of structure and remarking that Mod "did not deny" that his new compounds had insecticidal activity. The court in *Mod* did not discuss a "*prima facie* case", but stated that it was not sufficient for patentability that the antimicrobial activity of Mod's new compounds was unknown to the prior art. *Id.* at 1057, 161 USPQ at 283. In a decision analogous to the majority's holding today, the CCPA held that because Mod's new compounds would

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have been obvious for the prior art use as insecticides, they were unpatentable despite Mod's discovery of a "significant" new property. *Id.*

*Mod* has often been distinguished. See e.g., *In re Albrecht*, 514 F.2d 1389, 185 USPQ 585 (CCPA 1975), wherein the court directly contradicted *Mod*, as follows:

We are of the opinion that a novel chemical compound can be *nonobvious* to one having ordinary skill in the art notwithstanding that it may possess a known property in common with a known structurally similar compound.

*Id.* at 1395-96, 185 USPQ at 590 (emphasis in original). With rare exceptions *Mod* has not been followed; until today.<sup>12</sup>

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<sup>12</sup> The facts in *Mod* are indeed on all fours with the facts now before us. In *Mod* the court held that the apparently shared property of insecticidal activity sufficed to make Mod's new (but structurally similar) compounds unpatentable for obviousness, despite Mod's discovery that his new compounds had the new property of antimicrobial activity. In Dillon's case the court holds that the presumptively shared property of water sequestration suffices to make Dillon's new (but structurally similar) compositions unpatentable for obviousness, despite Dillon's discovery that her new compositions have the new property of soot reduction. In neither case did the prior art suggest or make obvious the applicant's newly discovered property. The absence of the term "*prima facie* case" from the *Mod* opinion does not distinguish it from the majority's holding today. A conclusion of obviousness must be legally sufficient under the statute, and for both *Mod* and Dillon the courts hold that on similar facts this conclusion is compelled as a matter of law.

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Continuing the chronological review: In *In re Jones*, 412 F.2d 241, 162 USPQ 224 (CCPA 1969) the court

upheld the rejection of composition claims to a blend of polypropylene and an asbestos filler as *prima facie* obvious, for the reason that "the prior art suggests the combination generally for the primary purpose ( i.e., improved structural rigidity) for which it was made." *Id.* at 244, 162 USPQ at 226. Comparative data were properly required, for both structure and properties were suggested in the prior art.

The procedural and substantive rigor of the *prima facie* case in patent examination is again illustrated in *In re Godron*, 428 F.2d 854, 166 USPQ 327 (CCPA 1970), wherein the court held that since a *prima facie* case of obviousness was not made as to a new glass composition having new and unobvious properties, it was unnecessary for the applicant to prove whether the prior art composition had the same property (the ability to wet graphite) as the applicant's composition:

We agree that it is improper to require comparative evidence where a reference is devoid of any suggestion of the claimed invention.

*Id.* at 855, 166 USPQ at 329.

This procedure was similarly applied to chemical process claims. For example, in *In re Freed*, 425 F.2d 785, 165 USPQ 570 (CCPA 1970) the claimed invention was a single-step process for producing calcium pantothenate. The CCPA held that the examiner had failed to support a *prima facie* case, since the prior art disclosed only a two-step process. Since a *prima facie* case was not made, the court held that it was unnecessary to show unexpected results. *Id.* at 788 & n.5, 165 USPQ at 572 & n.5. See also, e.g., *In re Alul*, 468 F.2d 939, 943, 175 USPQ 700, 703-04 (CCPA 1972) (since *prima facie* case not established, no need to consider contentions of unobvious results).

In *In re Kuderna*, 426 F.2d 385, 165 USPQ 575 (CCPA 1970) the board held that a claimed carbamate compound, having utility as an insecticide, was *prima facie* obvious in view of structurally similar known carbamates described in the prior art as useful as insecticides. The court held that the applicant's showing of superior results demonstrated unobviousness, in view of the entirety of the relevant teachings of the prior art and the absence of anything "on which to base a prediction of the comparative insecticidal activities" of these carbamate compounds. *Id.* at 390, 165 USPQ at 579.

In *In re Hoch*, 428 F.2d 1341, 166 USPQ 406 (CCPA 1970) the reference described a known compound and its use for "treatment of plant diseases"; the court held that a *prima facie* case of obviousness was made as to the applicant's structurally similar compound disclosed to be useful as a herbicide, stating:

On the face of it, "treatment of plant diseases" could mean usefulness in controlling plant-infesting organisms.... We are thus not persuaded that herbicidal properties are "contraindicated" by the [prior art] patent.

*Id.* at 1343, 166 USPQ at 408-09. *Hoch* simply illustrates the court's consideration of the closeness of the chemical structures (the only difference was between an acid and its ethyl ester) and the court's stated uncertainty about the relationship of the properties shown in the prior art and those disclosed by the applicant, in deciding whether a *prima facie* case was made.

The classical reasoning of the *prima facie* case is again illustrated for composition claims in *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). A composition

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comprising a polymer and a stabilizer was held *prima facie* obvious because a similar combination was suggested in the prior art for the same purpose, and Susi's stabilizer compounds were similar in structure to known compounds having the known property of stabilizing similar polymers. *Id.* at 444, 169 USPQ at 425. Thus a showing of unobvious results was properly required, for both structure and properties of the new composition were suggested in the prior art. <sup>13</sup>

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<sup>13</sup> There is extensive precedent relating to chemical compositions as well as chemical compounds; see the sampling herein. The statement by the majority that its *in banc* holding does not "necessarily" apply to "all cases" of chemical compositions will not add clarity and stability to the law. The court's holding today must be followed by patent examiners and patent applicants, and while I dissent from it, it is essential that inventors and examiners, producing and processing 150,000 new patent applications annually, know the law and practice that will control patentability.

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Another routine illustration of the *prima facie* case based on similarity of both structure and properties, between the prior art and the claimed compound, is seen in *In re Ackermann*, 444 F.2d 1172, 170 USPQ 340 (CCPA 1971). The board had rejected claims to an optical brightening agent as *prima facie* obvious from references describing structurally similar compounds having pronounced fluorescence and optical brightening properties. The CCPA agreed that a *prima facie* case had been made, since the "references also suggest that the art would expect the class of compounds as a whole to possess the general property of optical fluorescence"; but the court *reversed* on the question of sufficiency of the rebuttal evidence. *Id.* at 1176, 170 USPQ at 342-43.

In *In re Sternniski*, 444 F.2d 581, 170 USPQ 343 (CCPA 1971) the court again held that similarity of structure alone was insufficient for *prima facie* unpatentability. The claimed new compounds were analogs of known diaryl-tin compounds, and the known compounds were described as having no established utility, although utilities were suggested by the court. The court observed that the prior art provided no motivation to make the claimed compounds for applicant's purpose, although "one of ordinary skill would suppose the properties or potential uses of the two groups of compounds would be similar." *Id.* at 585, 170 USPQ at 347. <sup>14</sup>

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<sup>14</sup> As pointed out at n.2, *supra*, the facts illustrated in *Sternniski*, where the prior art compounds assertedly had no known use, are the only circumstance wherein the majority allows that structural similarities alone do not make a *prima facie* case of obviousness under section 103. While a chemical compound may be of solely theoretical interest, it is hard to imagine a composition (or a mechanical device) with no known use; thus this exception has scant practical significance with respect to compositions and mechanical devices.

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The *Sternniski* court remarked on "this court's failure to render consistent precedent" on the issue of structural obviousness, *id.* at 585, 170 USPQ at 347, stating that

*Henze*, its predecessors and its progeny have met with their share of criticism over the years, both in this court, in other courts, and elsewhere.

*Id.* at 587, 170 USPQ at 348 (footnote omitted). The court confronted the Commissioner's argument on the sufficiency of structural similarity alone, and held:

To the extent that *Henze* and *Riden* are inconsistent with the views expressed herein, they no longer will be followed, and are *overruled*.

*Id.* at 587, 170 USPQ at 348.

In *In re Murch*, 464 F.2d 1051, 175 USPQ 89 (CCPA 1972) the claims were directed to new polymer compositions described as having certain properties of toughness. A *prima facie* case was deemed made based on similar properties of toughness described for similar polymer compositions in the prior art; and was held rebutted based on evidence of improved weld line toughness. *Id.* at 1056, 175 USPQ at 92. Although the majority today cites *Murch* as supporting authority for "structural obviousness", the court in *Murch* distinguished *Mod* and *de Montmollin*, and reaffirmed reliance on *Papesch*. *Murch* is remote from a holding of *prima facie* obviousness based on structural similarity alone.

In *In re Freeman*, 474 F.2d 1318, 177 USPQ 139 (CCPA 1973) the court again distinguished *Mod* and *de Montmollin*, which had again been cited by the Commissioner for the position that structural similarity alone suffices to support a *prima facie* case of obviousness. The court stated:

We have recently pointed out that the rule derived from *Mod* and *de Montmollin* by the Patent Office is not supported by those cases.

*Id.* at 1322, 177 USPQ at 142. The court discussed the principle of the *prima facie* case as applied to section 103, explaining that if the evidence of obviousness of the claimed subject matter

is strong enough to establish a *prima facie* case, i.e., one which would prevail in the absence of rebuttal evidence, we must go

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on to examine the evidence of non-obviousness before the legal conclusion called for by section 103 can be reached.

*Id.* The court stressed the need to consider all the evidence.

The claimed invention in *In re Mochel*, 470 F.2d 638, 176 USPQ 194 (CCPA 1972) was sodium glass compositions containing magnesium oxide, a component known for use in lithium glass compositions. The court held:

No suggestion appears in the record of a purpose for including MgO in sodium glasses and no teaching of identical effects of secondary components in sodium and lithium glasses. We do not consider it "fair to assume" [quoting the examiner] such identity. We cannot, therefore, sustain the finding of *prima facie* obviousness.

*Id.* at 641, 176 USPQ at 196.

In *In re Cescon*, 474 F.2d 1331, 177 USPQ 264 (CCPA 1973) the court *reversed* the rejection of compound claims, where the board had relied on known methods of making the compounds as evidence of obviousness, and the examiner had "totally disregarded" the showings of improved properties. The court stated:

It has long been our position that a compound and its properties are inseparable and that no property can be ignored in determining patentability over the prior art.

*Id.* at 1334, 177 USPQ at 266. The court found that the prior art did not suggest a relationship between the change in chemical structure and the applicant's phototropic properties. The court stated that it was insufficient that this type of chemical modification was known:

Nothing in the prior art suggests any relationship between ortho substitution in the 2-phenyl ring [the structural difference from the prior art] and the properties disclosed and illustrated in appellant's specification.

*Id.* at 1334, 177 USPQ at 266-67. The court quoted with approval the following statement from *In re Larsen*, 292 F.2d 531, 533, 130 USPQ 209, 210 (CCPA 1961), cert. denied, 370 U.S. 936 [ 133 USPQ 703 ] (1962):

Since there was nothing to indicate that the compounds, when made, would have these properties, it was not obvious to make the compounds. In such a case the allowance of claims to the compounds must depend on the proposition that it was unobvious to conceive the idea of producing them, within the meaning of Title 35 U.S.C., Section 103.

*Cescon*, 474 F.2d at 1334, 177 USPQ at 266.

These cases illustrate the CCPA's continuing rejection of the "structural obviousness" theme, on the rationale that unless there was a reason or motivation shown in the prior art to make the particular structural change that the applicant made, in order to achieve the properties that the applicant was seeking, "it was not obvious to make the compounds." *Id.* As the court explained, the "idea" of new compounds is not separable from the properties that were sought by the inventor when making the compounds. Structure and properties are essential components of "the invention as a whole", in the words of section 103.

In *In re Taborsky*, 502 F.2d 775, 183 USPQ 50 (CCPA 1974) the prior art described a large number of isomers and analogs of the applicant's compounds. Taborsky's products were "halogen" compounds, discovered to be useful as selective piscicides against brown bullhead fish and as larvicides to control sea lampreys. The prior art compounds were described as controlling gastropods and snails. The *Taborsky* decision illustrates the care with which the court compared, compound by compound, the applicant's and the prior art's disclosure of structures and properties. As to the applicant's chlorine, bromine, and iodine analogs, the court remarked that it was unnecessary to pass on the issue of whether a *prima facie* case were made by the prior art's disclosure of related compounds containing these three halogens, because such case, if made, had been overcome by evidence of the comparative effectiveness of these compounds as larvicides to control sea lampreys. *Id.* at 781, 183 USPQ at 55. As to the fluorine analogs, the *Taborsky* court held that the board's holding of *prima facie* obviousness "because of structural similarity to the cited prior art" could not stand, since there was "no motivation to make the proposed molecular modifications needed to arrive at appellant's claimed fluoro-substituted compounds." *Id.* at 780-81, 183 USPQ at 55. The court held that it was not necessary for the applicant to compare actual properties of the new and the prior art compounds:

Since we hold that the prior art of record fails to establish that the fluoro-substituted compounds recited in appellant's claims are *prima facie* obvious, it is unnecessary to consider any comparative evidence with respect to the properties of these compounds.

*Id.* at 781, 183 USPQ at 55.

Only when the *prima facie* case was established by the prior art was the applicant required to develop comparative evidence. It

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is as much an obligation to avoid imposing unnecessary burdens on the applicant, and on the Patent Office, as it is to assure compliance with the law. See, e.g., *In re Seigneurin*, 474 F.2d 1020, 1023, 177 USPQ 257, 259 (CCPA 1973) (since no *prima facie* case of obviousness was made for a catalyst component of a chemical process, "[t]hat concludes the matter"); *In re Fischer*, 484 F.2d 961, 963-64, 179 USPQ 304, 306 (CCPA 1973) (no *prima facie* case, therefore no need to show unexpected results of claimed method). While the CCPA did not always decline to consider such evidence when it was already of record, the principle underlying orderly patent examination is that the burden in the first instance is on the examiner to establish that the claimed invention is *prima facie* unpatentable based on the prior art.

The no-utility exception that is recognized in the majority opinion is seen in the following case. In *In re Albrecht*, 514 F.2d 1389, 185 USPQ 585 (CCPA 1975) (*Albrecht I*) the prior art compounds were described as anesthetics that had the disadvantage of being skin irritants and therefore were not of practical use. Albrecht's new compounds were antiviral agents. The claims were rejected as *prima facie* obvious based on similarity of structure; in the examiner's words:

Where such closely structurally related compounds are concerned, actual unexpected differences in properties are required to overcome a *prima facie* case of obviousness. Even though the present compounds may exhibit an unexpected property as anti-virals, they are obvious as anesthetics.

*Id.* at 1392, 185 USPQ at 587 (emphasis in original). The Commissioner argued that Albrecht must prove that his new compounds were not anesthetics. The court disagreed, holding that the properties shown in

the prior art did not provide the "necessary impetus" to make Albrecht's compounds, *id.* at 1396, 185 USPQ at 590. The court also *reaffirmed* that properties must always be considered:

This court has several times recently expressed its position on the role of the properties of chemical compounds in assessing their obviousness under §103. See *In re Taborsky*, 502 F.2d 775, 183 USPQ 50 (CCPA 1974); *In re Blondel*, 499 F.2d 1311, 182 USPQ 294 (CCPA 1974); see further *In re Murch*, 464 F.2d 1051, 175 USPQ 89 (CCPA 1972); *In re Lintner*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972).

*Id.* at 1394, 185 USPQ at 588-89. The court observed that Albrecht's newly discovered antiviral property is "totally dissimilar" to the properties disclosed for the prior art compounds, and is "not to be ignored":

A newly discovered activity of a claimed novel compound which bears no material relationship to the activity disclosed for the prior art analogs is further evidence, not to be ignored, of the nonobviousness of the claimed invention.

*Id.* at 1396, 185 USPQ at 590. The court *reversed* the rejection.

In *In re Albrecht*, 514 F.2d 1385, 185 USPQ 590 (CCPA 1975), decided the same day, the court held, as to other related compounds, that a *prima facie* case was made based on structural similarity to the compounds of the same prior art reference as in *Albrecht I*. The court disposed of the Commissioner's position that the applicant should have provided comparative data with the anesthetic property of the prior art compounds, as follows:

There seems to be little doubt that the Patent and Trademark Office would not have entertained such a comparison if initiated by appellants because they have no support in their specification for use of the claimed compounds as anesthetics. See *In re Davies*, 475 F.2d 667, 177 USPQ 381 (CCPA 1973).

*Id.* at 1389, 185 USPQ at 593. The court correctly observed that comparative data, when required to rebut a *prima facie* case, should relate to the new property and use discovered by the applicant, not an unrelated known use of the prior art products.

In *In re Lamberti*, 545 F.2d 747, 192 USPQ 278 (CCPA 1976) certain new compounds having germicidal activity were rejected as *prima facie* obvious over structurally similar compounds described as biological toxicants, a use that the court found may include germicidal activity, although not necessarily. *Id.* at 750, 192 USPQ at 280. Rebuttal evidence was adduced and found insufficient. The court concluded:

In view of the foregoing, and considering the claimed invention as a whole vis-a-vis the evidence produced by the PTO, which shows both a close structural similarity between the prior art compounds and the claimed compounds and a close similarity between the *disclosed* uses, we hold that appellants' invention would have been obvious to one of ordinary skill in the pertinent art.

*Id.* at 751, 192 USPQ at 281 (emphasis added).

The majority has cited *In re Shetty*, 566 F.2d 81, 195 USPQ 753 (CCPA 1977). Shetty's new compounds were homologs of known compounds that were described in the prior art as antiviral agents, whereas Shet

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ty's compounds were discovered to have appetite-suppressant activity. Diverging from the weight of its precedent, the court held that a *prima facie* case was made based on the close similarities of chemical structure. Since Shetty did not prove that there were actual differences in properties, the composition claims were not allowed.

However, the *Shetty* court allowed the process claims (to the new use), <sup>15</sup> without requiring such proof. The court said, following precedent:

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<sup>15</sup> A new use is claimed as a process, in accordance with 35 U.S.C. §100(b):

The term "process" means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.

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The Patent Office has failed to show a reasonable expectation, or some predictability, that [a reference] compound would be an effective appetite suppressant if administered in the dosage disclosed by [another reference].

*Id.* at 86, 195 USPQ at 756. In contrast, the majority today affirms the rejection of Dillon's claims, process and composition, although such "expectation" or "predictability" was, without dispute, absent.

Despite the occasional aberration illustrated by *Shetty*, the CCPA decisions became remarkably consistent in requiring that both structure and properties must be suggested in the prior art before a *prima facie* case of obviousness was deemed made, whether for composition claims or process claims. *E.g.*, *In re May*, 574 F.2d 1082, 197 USPQ 601 (CCPA 1978), wherein the prior art compounds were isomers of May's compounds, and showed the same analgesic activity. A *prima facie* case was conceded as to the composition and the process claims, and overcome by rebuttal evidence of the non-addictiveness of May's compounds, an attribute that was

shown to be unpredictable.

Similar reasoning was applied to claims to a new use of a known compound in, e.g., *In re Herschler*, 591 F.2d 693, 200 USPQ 711 (CCPA 1979), wherein the use of the known compound MSO (dimethyl sulfoxide) to enhance steroid penetration through skin tissue was held by the board to be *prima facie* obvious from references showing DMSO in hair lotion preparations that may contain estrogenic hormones (steroids). The court *reversed*, holding that "[t]he references do not provide any impetus to do what appellant has done". *Id.* at 702, 200 USPQ at 718-19. In the absence of a *prima facie* case, appellant's rebuttal evidence was unnecessary:

We do not find it necessary to reach the question of the weight to be given the papers presented to the New York Academy of Sciences in that appellant has no *prima facie* showing of obviousness to rebut.

*Id.* at 702 n.9, 200 USPQ at 719 n.9.

Over the remaining years of the CCPA's existence its opinions were steadfast in requiring consideration of both structure and properties in determinations of *prima facie* obviousness. Precedent had ripened, as exceptions diminished. See *Kotteakos v. United States*, 328 U.S. 750 (1946), wherein the Supreme Court discusses how case by case determination on a variety of facts in time shows the direction of the law:

For, as with all lines which must be drawn between positive and negative fields of law, the precise border may be indistinct, but case by case determination of particular points adds up in time to discernible direction.

328 U.S. at 761-62.

Further illustrations of the direction established by precedent are, e.g., *In re Swan Wood*, 582 F.2d 638, 641, 199 USPQ 137, 139 (CCPA 1978):

In view of the close structural similarity between the claimed compounds and [the prior art compound], and the fact that the latter is disclosed as possessing antimicrobial activity, we believe that one skilled in the art would have been, *prima facie*, motivated to make the claimed compounds in the expectation that they, too, would possess antimicrobial activity.

In *In re Payne*, 606 F.2d 303, 203 USPQ 245 (CCPA 1979), the court stated:

The similarity in structure and properties between the prior art and claimed compounds is sufficiently close to support a *prima facie* case of obviousness.

*Id.* at 314, 203 USPQ at 255. The court explained:

An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound in the expectation that compounds similar in structure will have similar properties.

*Id.* at 313, 203 USPQ at 254.

In *In re Grunwell*, 609 F.2d 486, 203 USPQ 1055 (CCPA 1979) the court held that a *prima facie* case of obviousness was made for certain new steroids, and not for others. For compounds where the structures differed from the prior art only in a methyl substituent, and the physiologic and psychologic properties were similar, a *prima facie* case was deemed made. *Id.* at 491,

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203 USPQ at 1059. Other Grunwell steroids were ethers, while the closest structures in the prior art were alcohols; in that case the court held that a *prima facie* case was not made, because the examiner had not shown why one skilled in the art would have replaced this hydroxyl group with an ether. *Id.*

Similar reasoning was applied to process claims in *In re Clemens*, 622 F.2d 1029, 206 USPQ 289 (CCPA 1980). Claims to the use of new polymeric exchange resins to remove corrosion products in a steam system were rejected as *prima facie* obvious from references describing structurally similar polymers used for the same purpose. However, the court found that the PTO did not make a *prima facie* case as to claim 8 because of temperature limitations not shown in the prior art. Therefore:

Since the PTO had not made out a *prima facie* case of obviousness respecting claim 8, evidence of comparative testing was unnecessary in rebuttal.

*Id.* at 1036, 206 USPQ at 296.

Again in *In re Zeidler*, 682 F.2d 961, 215 USPQ 490 (CCPA 1982) a *prima facie* case was deemed made based on similarity of structure and of properties:

One of ordinary skill would have had reason to expect, given the close structural similarity of the [reference] compounds and the teachings of [another reference], that use of a sulfonamide bridge ... would have resulted in dyes possessing the same or only slightly different properties from prior art



dyes.

*Id.* at 966, 215 USPQ at 494. The *prima facie* case was held rebutted as to one claimed dye compound, but not as to another. *Id.*

The Federal Circuit did not stray from this precedent.<sup>16</sup> As summarized in *In re Grabiak*, 769 F.2d 729, 731, 226 USPQ 870, 871 (Fed.Cir. 1985):

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<sup>16</sup> Although the majority states that it is "not retreating from the recent trend of case law", the cases over the past thirteen years (since *Shetty* ) do not support this view. The courts have generally required that there be a suggestion in the prior art that would have made obvious not only the chemical structure but also the newly discovered property of a new chemical compound or composition, in order to make a *prima facie* case under section 103.

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When chemical compounds have "very close" structural similarities and similar utilities, without more a *prima facie* case may be made.

The rule also continued to be applied to process (use) claims, as illustrated in *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed.Cir. 1986), wherein the court held that "close structural similarity and a similar use" of the applicant's known compound and the prior art compound made a *prima facie* case of obviousness of claims to the asserted new use. *Id.* at 1097, 231 USPQ at 379.

In *In re Geiger*, 815 F.2d 686, 2 USPQ2d 1276 (Fed.Cir. 1987) the Federal Circuit held that although the prior art disclosed the separate components of the claimed new compositions, for the same general use of treating cooling water systems, a *prima facie* case was not established "absent some teaching, suggestion or incentive supporting the combination". The court held that:

Because we reverse on the basis of failure to establish a *prima facie* case of obviousness, we need not reach the issue of the sufficiency of the showing of unexpected results.

*Id.* at 688, 2 USPQ2d at 1278.

In *In re Chupp*, 816 F.2d 643, 2 USPQ2d 1437 (Fed.Cir. 1987) the applicant did not challenge the board's holding that a new compound useful as a herbicide was *prima facie* obvious in view of the prior art showing of an adjacent homolog and other structurally similar compounds used as herbicides. However, the court found the rebuttal evidence of differences in selectivity sufficient to hold the composition claims allowable. *Id.* at 647, 2 USPQ2d at 1440.

In *Chupp* the court disposed of the Commissioner's policy argument that grant of the composition claims would prevent the public from using Chupp's structurally obvious compound for the herbicidal uses shown in the prior art, with the remark that "the expectation that persons would want to use the compound to produce inferior results (or would want to fight lawsuits over such uses) is false." *Id.* at 647, 2 USPQ2d at 1440.

The Federal Circuit has not applied the standard of *prima facie* obviousness that the majority today "reaffirms", but has consistently considered properties and use as well as structure. The only decision referred to by the majority is *In re Wright*, 848 F.2d 1216, 6 USPQ2d 1959 (Fed.Cir. 1988), as if *Wright* stood alone in its requirement that the inventor's desired properties and use must be considered. *Wright* dealt with a mechanical device, and is in the mainstream of this precedent. In *Wright* we said:

The determination of whether a novel structure is or is not "obvious" requires cognizance of the properties of that structure and the problem which it solves, viewed in light of the teachings of the prior art.

*Id.* at 1219, 6 USPQ2d at 1361 (citations

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omitted). Not one of the myriad cases wherein the courts had required consideration of these factors is mentioned or *distinguished* by the majority, although presumably *all* are now *overruled*. In this already-lengthy survey I have not included mechanical cases whose rationale is stated in the same terms as that of *Wright*.<sup>17</sup> Nonetheless the *in banc* court today overrules *Wright*, without argument or briefing, and extends to mechanical devices the same theory of structural obviousness that the court now applies to chemicals, discarding the extensive precedent to the contrary.

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<sup>17</sup> *Wright* claimed a new carpenter's level, having the new property and use of enhanced pitch measurement. *Wright*'s new structure was a combination of elements that were in the prior art, but there was no suggestion in the prior art that this new combination might have the property and use discovered by *Wright*. The panel explained that it was unobvious to make this combination to solve the problem of increasing pitch measurement: a rationale appearing in dozens of decisions. See, e.g., *Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick Co.*, 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed.Cir. 1984) ("Nothing in the references alone or together suggests the claimed invention as a solution to the problem of crushing rigidly massive scrap"); *In re Benno*, 768



F.2d 1340, 1347, 226 USPQ 683, 687 (Fed.Cir. 1985) ("[Benno] had to invent a solution to that problem.... Neither reference hints at his solution"); *Weather Engineering Corp. of America v. United States*, 614 F.2d 281, 287, 204 USPQ 41, 46-7 (Ct.Cl. 1980) ("The near unanimous approach by the courts is that '[t]he prior art that is relevant in evaluating a claim of obviousness is defined by the nature of the problem confronting the would-be inventor'"); *In re Naber*, 494 F.2d 1405, 1407, 181 USPQ 639, 641 (CCPA 1974) ("even if one of ordinary skill in the art were moved to combine the references, there would be no recognition that the problem of combustible deposits had been solved"); *In re Aufhauser*, 399 F.2d 275, 281, 158 USPQ 351, 355 (CCPA 1968) ("as in *United States v. Adams*, 383 U.S. 39 [ 148 USPQ 479 ] (1966), what appellant had done was to *observe* an existing problem in the art which had not been solved by the prior art and then *combine* individually old concepts to solve that problem") (emphasis in original); *In re Rothermel*, 276 F.2d 393, 125 USPQ 328, 331 (CCPA 1960) ("Where the invention for which a patent is sought solves a problem which persisted in the art, we must look to the problem as well as its solution if we are to properly appraise what was done and to evaluate it against what would be obvious to one having the ordinary skills of the art."); *In re Ratti*, 270 F.2d 810, 813, 123 USPQ 349, 351 (CCPA 1959) (the prior art did not teach "how to solve the problems" faced by the inventor).

Many other decisions apply similar reasoning, contrary to the majority's holding today.

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The Court stated in *Thomas v. Washington Gas Light Co.*, 448 U.S. 261, 272 (1980):

When rights have been created or *modified* in reliance on established rules of law, the arguments against their change have special force.

At least, the majority should explain its reasoning for so far-reaching a change of law and practice, affecting patentability of mechanical devices as well as chemical compounds and compositions.

## D

### The Statute

The court's *in banc* holding that similarity of chemical (and mechanical) structure suffices for *prima facie* unpatentability under 35 U.S.C. §103, even when the applicant's newly discovered properties and use are not suggested in the prior art, departs from the precepts of not only section 103, but also sections 101 and 102. The court today imposes the same rebuttal burden on the applicant regardless of whether the prior art suggests the applicant's newly discovered properties.

35 U.S.C. §103 requires that obviousness be determined in light of the prior art; section 102 fixes the limits of prior art; and section 101 requires utility as a condition of patentability. Giving consideration to the newly discovered properties and utility as well as the structure of a new chemical compound or composition (or a new device) implements the requirement of section 103 that the invention be viewed as a whole. *Jones v. Hardy*, 727 F.2d 1524, 1529, 220 USPQ 1021, 1025 (Fed.Cir. 1984) ("Failure to consider the claimed invention as a whole is an error of law"); *In re Kuehl*, 475 F.2d 658, 664-65, 177 USPQ 250, 255 (CCPA 1973) ("The test under §103 is whether in view of the prior art the invention as a whole would have been obvious at the time it was made"). As the court remarked in *Lunsford*, it is unlikely that a person of ordinary skill would consider only the structures, and not the properties, described in the prior art.

The factual determination of the scope and content of the prior art, *see Graham*, 383 U.S. at 17, 148 USPQ at 467, is, of course, directed to prior art that meets the conditions of section 102. Section 102 describes prior art as what is published or otherwise known, including subject matter in public use or on sale. Not included is what is unknown, or knowledge that became known to the inventor through the inventor's own research:

To rely on an equivalence *known only to the applicant* to establish obviousness is to assume that his disclosure is a part of the prior art. The mere statement of this proposition reveals its fallaciousness.

*In re Ruff*, 256 F.2d 590, 598, 118 USPQ 340, 347 (CCPA 1958) (emphasis in original). Indeed, this principle was recently modernized by Congress in 35 U.S.C. §103, second paragraph (1984) (prior art does not include certain information of common ownership). When the prior art does not suggest that similar structures will have the property and use that the inventor discovered, such fact can not be used to support rejection of the claims, even when the inventor included such information in the patent application.

35 U.S.C. §101 requires that an invention be useful. The use of a chemical is the utilitarian property of that chemical. Since the essence of the *prima facie* case is that the holding of unpatentability is legally complete, the property and utility can not be ignored. Consideration of the utility of the claimed invention is as integral to the examiner's determination of *prima facie* unpatentability as it is to the decision after any rebuttal evidence is submitted.

The decisions I have discussed, and many others, illustrate the breadth of the court's exposure and the depth of the court's understanding, evolved over more than thirty years of application of these statutory principles. The weight of precedent, well exceeding the sampling I have reported, contradicts the majority's holding, and has established powerful legal principles that should not be discarded without sound reason. As discussed by the Supreme Court in *Vasquez v. Hillery*, 474 U.S. 254, 265 (1986),

*stare decisis* [is] the means by which we ensure that the law will not merely change erratically, but will develop in a principled and intelligible fashion. That doctrine permits society to presume that bedrock principles are founded in the law rather than in the proclivities of individuals....

The law of *prima facie* obviousness had developed over a long history, knitting the common threads of many carefully considered cases, leading to unifying criteria, in the tradition of the common law.

The court has made the wrong choice in reviving the *Hass-Henze* presumption of obviousness based on chemical structure without consideration of the obviousness of the applicant's new properties. This presumption was criticized, limited, and *overruled*, and has been *superseded* by judicial appreciation that a chemical "is, realistically and legally, a composite of both structure and properties", in the words of *Papesch*. I repeat the unifying criterion that for a new chemical compound or composition a *prima facie* case of obviousness is made when both (1) the new compound or composition is of closely related chemical structure to the prior art compound or composition, and (2) there is some suggestion or motivation arising in the prior art to make the new compound or composition in order to achieve the inventor's desired properties and utility. When these requirements were met, appropriate evidentiary showings could rebut the *prima facie* case. Only an occasional exception among past decisions eliminated the second part of this unifying criterion, and required proof of actual differences in properties when there was no suggestion in the prior art of the properties discovered by the inventor. Today the aberration becomes the law, reversing over thirty years of reasoned legal analysis.

The court does not state what new statutory interpretation is invoked, what new policy or principle is served, by rejecting the reasoning of so many decisions. The Supreme Court has remarked that

any detours from the straight path of *stare decisis* in our past have occurred for articulable reasons, and only when the Court has felt obliged "to bring its opinions into agreement with experience and with facts newly ascertained."

*Vasquez*, 474 U.S. at 266 ( *quoting Burnet v. Coronado Oil & Gas Co.*, 285 U.S. 393, 412 (1932) (Brandeis, J., dissenting)). When our court makes so dramatic a change of law, its *ratio decidendi* should be made known.

## II

### DILLON'S INVENTION

Dillon's patent application discloses and claims her discovery that the inclusion of certain tetra-orthoester compounds in hydrocarbon fuel compositions will reduce the emission of solid particulates ( *i.e.* soot) during combustion of the fuel. The tetra-orthoesters are a known class of chemical compound. It is undisputed that their combination with hydrocarbon fuels, for any purpose, is not described in the prior art; nor is their use to reduce particulate emissions from combustion of hydrocarbon fuels.

#### A

#### ***Dillon's Appeal to the Board***

An applicant is required to appeal from all of the examiner's rejections that the applicant wishes to contest. 37 C.F.R. §1.191(c). Dillon did so, and appealed the rejection of claims 2-14, 16-22, and 24-37. Of these, claims 24-35 were process (use) claims and

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the others were composition claims. The appealed rejections were directed to the process and composition claims together, and were described by the board as follows:

1. Claims 24 through 37 under 35 U.S.C. 112, second paragraph.
2. Claims 2 through 14, 22 and 34 through 37 under 35 U.S.C. 103 as unpatentable over Sweeney '417 in view of Elliott, Howk, Kesslin, Speh, and Neves.
3. Claims 16 through 22, 24 through 33, 35, 36 and 37 under 35 U.S.C. 103 as unpatentable over Sweeney '267 or '417 in view of Elliott, Howk, Kesslin and Speh.

Board op. at 2. In its decision the board wrote that composition and method of use claims were at issue:

The appealed subject matter relates to compositions comprising a hydrocarbon fuel and a particulate emissions suppressing amount of an organic orthoester, and a method of reducing particulate emissions by combusting such compositions.

Board op. at 1.

Dillon duly *argued* each group of rejection, in accordance with 37 C.F.R. §1.192, and the examiner responded. The board *reversed* the examiner's rejection on section 112, for all the claims rejected on that ground, and *affirmed* the rejections on section 103, for all the claims rejected on that ground. Each ground encompassed composition and process claims, without distinction. (The board also discussed claims 13, 14, 34, 36, and 37, as to aspects not here material.)

Analyzing all the claims with respect to section 103, the board did not distinguish among them. For example,

the board stated that

differences between applicant's and the prior art's motivation for adding a component to a composition will not alone render the claimed *composition, or process* unobvious.

Board op. at 7 (emphasis added). The board further stated, again as to all the claims, that

The mere recitation of a newly discovered function inherently possessed by *things and processes* in the prior art does not cause claims drawn thereto to distinguish over that prior art.

Board op. at 8 (emphasis added). Throughout its opinion the board did not imply that its analysis was directed solely to the composition claims. Indeed, the board stated that

the *use* of the orthoesters recited in the appealed claims (wherein R is -OR) as hydrocarbon fuel additives would clearly have been *prima facie* obvious from the teachings of the Sweeney patents alone and the close chemical and structural relationship between Sweeney's and appellant's orthoesters[.]

Board op. at 6 (emphasis added). The majority errs in its statement that the board "review[ed] only the composition claims". The board considered and rejected all the claims, drawing no distinction as to the style of the claim.<sup>18</sup>

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<sup>18</sup> The process claims were written in the style required by 35 U.S.C. §100(b), see n.15, *supra*. As explained in *In re Moreton*, 288 F.2d 708, 709, 129 USPQ 227, 228 (CCPA 1961), "[t]his mere matter of form [i.e., claiming a new use as a process] should have no effect on patentability".

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The rejection of all of the claims was appealed to us. The Commissioner has not *argued* otherwise, and both sides briefed and *argued* all the claims. As stated in the Commissioner's brief, the issue on appeal is whether "The claimed subject matter would have been *prima facie* obvious from the combined teachings of the references." Thus I must dissent from the court's affirmation of the board's rejection of the process claims simply because Dillon did not argue that the process claims are patentable even if the composition claims are not.

## **B**

### ***In re Durden***

Before this court, Dillon properly did not discuss points that had not been raised by the examiner or the board. Since there had been no reliance on the law of *In re Durden*, 763 F.2d 1406, 226 USPQ 359 (Fed.Cir. 1985), and neither the examiner nor the board cited *Durden*, Dillon did not discuss the law of *Durden*.

The Commissioner, in his answering brief before the Federal Circuit, *argued* for the first time that *Durden* provided additional authority for upholding the board's rejection of the process claims. The Commissioner stated that if the court decided to reverse the board's holding of unpatentability, the court should consider the effect of *Durden*. The panel, having *reversed* the board's holding, thus considered *Durden*, as the Commissioner requested; the panel simply observed that *Durden* does not apply to "use" claims.

However, the majority of this court, having *affirmed* the rejection of all the claims, has no basis for review on additional authority. Thus I can not join the majority's opinion interpreting *Durden*, for it is, in the event, *dictum*.

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## **C**

### ***The Merits***

Applying the guidance of precedent to Dillon's invention: the compositions are new,<sup>19</sup> and their property and use of reducing particulate emissions is not taught or suggested in the prior art. There is no objective teaching in the prior art that would have led one of ordinary skill to make this product in order to solve the problem that was confronting Dillon: to reduce soot from combustion of hydrocarbon fuels. There is no reasonable basis in the prior art for expecting that Dillon's new compositions would have the particulate-reducing property that she discovered. As shown in Part I, *ante*, structure, properties and use must be considered in determining whether a *prima facie* case under section 103 has been made.

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<sup>19</sup> If a compound or composition is known, for any use or no use, it is not patentable. 35 U.S.C. §102; *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 780, 227 USPQ 773, 777-78 (Fed.Cir. 1985).

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The Sweeney references show the water-sequestration property of tri-orthoesters in hydrocarbon fuels, and the Elliott reference shows the water-sequestration property of tri- and tetra-orthoesters in hydraulic fluids (which are not hydrocarbons and not fuels). There is no suggestion in the prior art that would have led one of ordinary skill to make Dillon's new compositions in the expectation that they would reduce particulate emissions from

combustion. No reference suggests any relationship between the properties of water-sequestration and soot-reduction. All this is undisputed.

Dillon raises the question of whether the Sweeney and Elliott references<sup>20</sup> are properly combinable, arguing that they are not in analogous arts. This question need not be decided, for even when combined these references offer no suggestion of the property of reducing particulate emissions from combustion. *In re Naber*, 494 F.2d 1405, 1407, 181 USPQ 639, 641 (CCPA 1974) ("even if one of ordinary skill in the art were moved to combine the references, there would be no recognition that the problem of combustible deposits had been solved").

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<sup>20</sup> The Board held that all the references other than Sweeney and Elliott were "merely cumulative", and did not discuss the Howk reference, on which the majority apparently now relies.

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The board stated that it is inherent in Dillon's compositions that they would reduce particulate emissions, that Dillon "merely recited a newly discovered function inherently possessed" by the prior art. Arguments based on "inherent" properties can not stand when there is no supporting teaching in the prior art. Inherency and obviousness are distinct concepts. *In re Spormann*, 363 F.2d 444, 448, 150 USPQ 449, 452 (CCPA 1966):

he inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown.

When the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, the PTO must produce supporting references. *In re Yates*, 663 F.2d 1054, 1057, 211 USPQ 1149, 1151 (CCPA 1981).

The applicant's newly discovered properties must be considered in determining whether a *prima facie* case of unpatentability is made, along with all the other evidence. Neither structure nor properties can be ignored; they are essential to consideration of the invention as a whole. But Dillon's own discovery of the soot-reducing property of the tri-orthoester fuel composition is not evidence against her in determining whether the prior art makes a case of *prima facie* obviousness. *In re Wertheim*, 541 F.2d 257, 269, 191 USPQ 90, 102 (CCPA 1976) (applicant's own disclosures can not be used to support a rejection of the claims "absent some admission that matter disclosed in the specification is in the prior art"); *In re Ruff*, 256 F.2d at 598, 118 USPQ at 347 ("The mere statement of this proposition reveals its fallaciousness").

The board cited *In re Merck*, 800 F.2d at 1097, 231 USPQ at 379, in arguing that obviousness does not require absolute predictability. Obviousness does, however, require a sufficient relationship between the use taught in the reference and the use discovered by the applicant. In *Merck* the reference compound and the claim compound were both known to have psychotropic properties, supporting the holding of *prima facie* obviousness of the claimed specific anti-depressant use. Applying this reasoning to Dillon's claims leads to the opposite conclusion, for Dillon's use to reduce soot from combustion is not suggested by the known use of the prior art compositions to scavenge water. (Only "use" claims were present in *Merck* - again illustrating that the board, citing *Merck* against Dillon's claims, did not distinguish between composition and use claims in its analysis of Dillon's invention.)

In view of the complete absence of any suggestion in the prior art that Dillon's new compositions would have her newly discovered and unobvious property and use of soot

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reduction, I would reverse the rejection of the composition and the use claims.

The Commissioner raised the policy argument that Dillon is simply removing from the public an obvious variant of Sweeney's and Elliott's compositions, one that might be useful to scavenge water in fuels. In *Ruschig* the court had considered the argument, and remarked that the provision of adequate patent protection for the applicant's new compounds, not previously in existence and having a new and unobvious use, was favored over the "mere possibility that someone might wish to use some of them for some such [other] purpose". 343 F.2d at 979, 145 USPQ at 286. See also, e.g., *Chupp*, 816 F.2d at 647, 2 USPQ2d at 1440, wherein the court expressed a similar view. This practical wisdom has been tested by long experience. It accords with judicial recognition that:

Although there is a vast amount of knowledge about general relationships in the chemical arts, chemistry is still largely empirical, and there is often great difficulty in predicting precisely how a given compound will behave.

*In re Carleton*, 599 F.2d 1021, 1026, 202 USPQ 165, 170 (CCPA 1979).

Granting Dillon a patent on her invention takes away nothing that the public already has; and the public receives not only the knowledge of Dillon's discovery, for abandoned patent applications are maintained in secrecy, but Dillon is not deprived of an incentive to discover and to commercialize this new product for this new use.<sup>21</sup>

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<sup>21</sup> The majority remarks that Dillon made "no attempt to argue the relative importance" of soot reduction and water sequestration. This dramatic new criterion, although presented in the *amicus* brief of the American Intellectual Property Law Association, should not be approved by this *in banc* court without discussion.

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### **Conclusion**

Following the weight of precedent, I would hold that a *prima facie* case of obviousness of a new chemical compound or composition requires consideration of not only the chemical structure but also the newly discovered properties, in light of the teachings and suggestions of the prior art. I would expressly reject the Commissioner's position that determination of the *prima facie* case is made regardless of the properties disclosed in the inventor's application.

Since there is no suggestion in the prior art references, alone or in combination, of the particulate-reducing property and use discovered by Dillon for her new compositions, a *prima facie* case of obviousness has not been made. Thus it is not necessary to patentability that Dillon establish that the prior art compositions do not possess the same soot-reduction property and use. I would reverse the board's rejection of claims 2-14, 16-22, and 24-37, all of the claims before us on appeal.

- End of Case -

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